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BREEDS OF DAIRY CATTLE

AND

Theory of Judging

1933

Prepared for the students of

The Pennsylvania State College

by

A. L. Beam

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CHAPTER I

ANCESTRY OF DOMESTICATED CATTLE

Cattle are the most important domesticated animals of the English speaking people and they have responded exceptionally well to the needs of man by varying and developing under his care into many different forms. There are no cattle so dwarfed as are the smallest ponies among horses, although the Kerry is very small, but diminutive breeds would, no doubt, have been developed if there had been any utility in preserving them; yet there are great ranges of color, size, shape, and temperament. The size of the wild species that belong to the genus Bos range from that of the Anoa, which is only 3 feet 3 inches in height at the shoulder, to the Banting and the Gaur, which measure nearly 6 feet in height. The domesticated water buffalo is sometimes 6½ feet tall and some species of the sacred oxen of Ceylon are said to be only 2 feet 2 inches in height.(1)

The term "cattle" usually means the domesticated bovine animals, principally the two species - Bos taurus, the cattle of Europe, and Bos indicus, the humped cattle of India and Africa, commonly called the "Zebu" or "Brahman". The latter name is used by breeders in the United States when referring to cattle imported from India.

The early English writers used "cattle" or "cattell" as a collective name for all kinds of livestock held as property or raised for food or beasts of burden. Bovine animals were then designated as "horned cattle" and later "neat cattle". "Neat" is derived from the Anglo-Saxon word "neotan" meaning "to make use of". The Old Testament records refer to "cattle of the flock " and "cattle of the herds". The former included the small ruminants as sheep and goats and later were bovine animals used both as beasts of burden and for meat and milk and are known to us as "cattle".

The federal law, passed in 1890, upon which our livestock import regulations are largely based, refers specifically to "neat" cattle. This was necessary because in some foreign countries the term "cattle" is still applied to various kinds of farm animals other than those of the genus Bos. In Pennsylvania laws the term "neat cattle" is used instead of "cattle" but for federal meat inspection purposes the terms are synonomous.

CLASSIFICATION OF GENUS BOS

The genus Bos is the most specialized of the family Bovidae and according to Lydekker(2) it includes five subgenera. (a) Taurine, which includes our common oxen and the humped cattle of Africa and Asia; (b) Bibovine, composed of the gaur, gayal, and banting; (c) Leptobovine, extinct species only; (d) Bisontine, which includes the yak and bisons; and (e) Bubaline, or buffalo group.

HISTORICAL SKETCH OF THE BOVIDAE

Domesticated cattle have been derived from wild species of the genus Bos, which is one of the largest genera of the family Bovidae. The members of this family, like all ruminating mammals, possess hoofs with an even number of toes. Among the noticeable features which separate them from other ruminants are the persistent horns with a bony horncore.

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(1) See Vol. 48, No. 6 National Geographic for pictures.
(2) Horse, E.W. Ancestry of Domesticated Cattle, 1910 Annual Report of Bureau of Animal Industry.

The Cervidae, or deer family, is closely allied to the Bovidae but they have solid horns which branch and are shed annually.

The pronghorn, an antelope of Western North America, is the connecting link between the two families. Its horns are branched and the horn sheath, but not the horncore, is deciduous.

The earliest traces of hoofed animals are fragments of ones discovered in New Mexico which were found embedded in deposits formed in geological period known as the Eocene, according to Morse. Authorities find it difficult to distinquish the ancestors of the herbivorous animals with hoofs from the carnivorous species that had claws. Skeletal changes took place which indicated that the small marsh and forest dwelling animals gradually developed into hard hoofed quadrupeds adapted for life on grassy plains. Some of the important skeletal modifications were, the development of powerful grinding teeth; a thickening of the brain case, often bearing horns; the disappearance of incisor and canine teeth from the upper jaw and a reduction of the digits from five to two. The Bovidae is the youngest member of the family of hoofed animals and representatives have been found in all parts of the world except South America and Australia.

The oldest record of the milking of cows was found in a building more than 6000 years old which was excavated near Babylon, according to Pirtle.(1) A peculiar thing is that men were shown milking the cows, while for centuries after that period it was done by women.

The Egyptian civilization dating from about 4000 B.C. left many records in pictures to indicate their methods of herding, breeding, and dairying. Three kinds of cattle were found in Egypt at that time; long horned, hornless, and humped or Zebus.

DEVELOPMENT OF BREEDS

Cattle were first raised largely as beasts of burden, but with the increasing use of horses and machinery the extent to which they are used for this purpose is rapidly decreasing.

The second great evolution of domestic cattle was into breeds that were especially adapted to the production of beef. Then followed the third stage, the special development of the dairy cow, coincident with the increase in urban population.

The following statement written by an Englishman(2) during the Revolutionary War gives at least one reason why man was interested in the development of breeds.

"The ox is the most valuable of horned cattle, he costs but little to keep and yields a considerable profit; is very good for draught and for the plough; he lives to a good age; and when worn out with service he is fattened and becomes excellent food. His skin and his suet sell for a good price, even his horns and his gall fetch some what, and his dung is a good manure, in short he may justly be styled, by way of excellence THE ANIMAL; for, besides the great services which he renders to man he returns to the earth full as much as he takes from it, even meliorates the soil on which he lives and fattens his pastures: whereas, the horse and most other animals exhaust the richest meadows in a few years.

Without the ox, both rich and poor would find it difficult to subsist, the earth would lie uncultivated, our fields and even our gardens would be dry and barren.

(1) Pirtle, T. R., History of Dairying
(2) Mills, John. A Treatise on Cattle.

Formerly the wealth of man consisted chiefly in his herds of black cattle and they still continue to be the basis of national opulence; for it is only by the cultivation of lands and the abundance of cattle that a state can be maintained in a nourishing condition. There are, alone, real goods, all other, gold and silver not excepted, are only arbitrary; money and credit having no other value than what they derive from the product of the earth."

CLASSIFICATION OF BREEDS

Although considerable difference of opinion exists as to the origin of domesticated breeds of cattle, most investigators list but two types of species from which European cattle are descended.

The first type, Bos primigenius is described as being a large, powerful animal standing 6 to 7 feet tall at the withers. Its skull was much longer and narrower than the skull of the second type, Bos longifrons, or as called by some, Bos sondaicus. Bos primigenius roamed wild over Western Asia, Northern Africa and Europe within historic times.

Bos longifrons has never been found in a wild state with certainty. It lived in England during the Romas occupation and is the ancestor of the Welsh and Highland breeds. On this basis Horse classifies breeds of dairy cattle in America as follows:

(1) Bos primigenius
  Holstein-Friesian
  Dutch Belted
(2) Bos primigenius scoticus
  Ayrshire
(3) Bos longifrons alpestris
  Brown Swiss
(4) Bos longifrons insolanus
  Jersey
  Guernsey

The first classification of breeds was based on geographical distribution as lowland, upland, and mountain breeds. Later the factor of color was considered. In the middle of the last century cattle in England were classed as Shorthorns, Middle-horns, and Long-horns. Today all breeds are grouped according to their economic value as beef, dairy, and dual purpose.

POLLED CATTLE

Investigators differ as to the origin of polled cattle and no satisfactory explanation has yet been made concerning the appearance of the hornless condition.

Some authorities believe that polled cattle are the result of domestication and the unfavorable conditions which are thought to have reduced Bos taurus in size. Recent explorations in Turkestan and records from Babylonia support the view that the appearance of the polled character is a reversion to the ancestral hornless type.

It is also thought that horned individuals occurred by spontaneous variation and survived through natural selection. The inference is that horns were acquired as a defense against carnivorous animals or rather the polled animals were killed and only those that developed horns could protect themselves and reproduce their species. It is known that dehorning does not hasten or tend toward a hornless condition. The polled characteristic is dominant when polled cattle are crossed with cattle which are horned. Morse states that the oldest European forms of cattle had polled females indicating that in still older species both sexes were without horns.

ORIGIN OF THE PRINCIPAL TYPES OF CATTLE IN AMERICA

"The first cattle in America" according to Morse(1) "were brought in 1493 by Columbus on his second voyage. Subsequently many other cattle were brought from Spain to the New World by the colonists who settled in the West Indies. Some of the cattle escaped from captivity and lived in a wild state where there were rich grazing lands in the wilds of the Antilles. From the West India Islands these cattle of Spanish descent were carried to the mainland both north and south of the Isthmus of Panama. About 1525 some were taken to Vera Cruz, Mexico, where they rapidly multiplied and gave rise to the stock, which later became known to the breeders in the United States as "Texas" cattle, and hence are of Spanish origin.

The Portuguese made settlements at Cape Breton Island and other places, as an adjunct to the fishing industry, about 1525, or even earlier. Both cattle and swine were taken by the fisherman to Newfoundland and Nova Scotia in 1553. When the Hugenots settles, in 1672, on the Broad River, South Carolina, they may have taken cattle with them, but up to the present time no record has been found to that effect.

The first cattle to reach the territory now included in the United States were brought by Sir Richard Grenville to Virginia in 1535, in an expedition sent out by Sir Walter Raleigh from Plymouth, England, but the colony perished and the cattle were probably slaughtered by the settlers. From a study of the records it is evident that the cattle introduced at Jamestown, Virginia, were from English breeds, with some mixture of Spanish cattle from the West Indies. In New York the cattle were largely of Dutch origin. In Pennsylvania the cattle were brought over by the Dutch and Swedish settlers. At Plymouth, Massachusetts, the cattle were brought from Holland and England. The ships which arrived at Boston contained mostly English breeds, the Devon predominating. In New Hampshire, Captain Mason introduced a large yellow breed from Denmark. In Canada the importations were largely from France. Humped cattle of India (Zebus) have also been imported to Texas and the West Indies, because of their supposed immunity to Texas fever, and the crosses with native cows have thus far been very successful.

Although we speak of the different breeds of cattle that were brought to America, there were many non-descripts, and but few if any, would be recognized as belonging to any type of our modern purebreds until Messrs. Miller and Gough imported Teeswater (Shorthorn) into Virginia in 1783. With the exception of the Holsteins and Brown Swiss, but few cattle from other countries have been imported except from the British Isles.

Cattle not being native to America, there are no strictly American breeds, but owing to differences in climate, care, and ideals of American breeders, the European breeds which have been brought to America have nevertheless changed to some extent. Occasionally a strain of improved stock has arisen as a sport, or by careful selection the stock has obtained a local reputation as a breed, such as the Gore breed, well known in New England seventy-five years ago, and still later the American Holderness in New York. Up to the present time, with the exception of the Polled Shorthorn, and the French-Canadian, none of the so-called American breeds has obtained anything like a national reputation."

ADVANCEMENT OF DAIRYING(2)

6000 B.C. Oldest record of milking cows, Babylonian excavations

(1) Morse, E. W. The Ancestry of Domesticated Cattle.
(2) Dates secured from "History of Dairying", Firtle; "The Pathof the Gopatis", Carruthers; "Dairy Cattle and Milk Production", Eckles; and "American Cattle", Allen.

4000 B.C. Dairying common in Egypt.
3500 B.C. Vehic hymns of India proclaim the cow a benefactor to human race.
2337 B.C. "One thousand yoke of oxen" - The Book of Job.
2000 B.C. Cattle and sheep numerous in Greece.
1490 B.C. Biblical references to milk, butter, and cheese.
500 B.C. Aristotle wrote about casein, fat, and water, all the known substances in milk.
376 B.C. Tartars brought cattle from China to Germany.
300 B.C. Friesians dwelt on shores of North Sea.
100 B.C. Batavians settled near the Friesians, bringing black cattle.
100 A.D. Tame grasses and alfalfa introduced into Italy.
475 A.D. Cheese an important article of commerce in Rome.
660 A.D. Cattle market established in Utrecht.
800 A.D. Use of cheese common in Germany.
1000 A.D. One Swiss cheese introduced by Monks still made in same region and under much the same conditions.
1350 A.D. Gun powder invented. Wild animals for food were exterminated rapidly and domestic animals were raised to supplement meat supply. Predatory animals killed.
1611 A.D. Colony at Jamestown, Virginia imported first cattle.
1645 A.D. Red clover introduced into England.
1611--1800 Introduction of cattle into United States.

Reference: Livestock in Mythology and Religion. Rudolph A. Clemons, Vol. 15, No. 1, June 1928. The Cattleman, Fort Worth, Texas.

CHAPTER II
DEVELOPMENT OF DAIRY CATTLE SCORE CARD

Judging and selecting dairy cows by conformation has been held in high esteem by progressive dairymen for a number of years. The following statement written in 1776 shows that dairymen were early formulating definite ideas about the conformation of good dairy cows:

"The cow should be high of stature, her horns well spread, fair and smooth, her forehead broad and smooth, her body long, her belly round and large and her udder white, not fleshy but large and lank, with only for teats; these having been experienced to yield the most milk"(1*)

In 1810 one writer stated that the features of the best milch cows were as follows:(2*) "a small head --- the neck very thin and low --- little dewlap, narrow in the breast and over the shoulder tops, chin free from flesh, thighs thin, longer forelegs than hind legs, better let down in the hind parts than before, but very little inclined to flesh anywhere. The udder should be of equal substance in every part and not remarkably large, for it it be, it will be more inclined to flesh than to milk."

After reviewing the use of cattle by mankind during the last 2000 years, Prentice shows that during all this period there has been a general opinion that form and function in beef and draught animals were so associated that skillful persons could distinguish good animals from poor ones by their looks. He states that these standards cannot be applied to dairy cattle and that the present score card of dairy brreeds is a late survival into modern times of unscientific methods of the past.(3*)

The writings of Ayrshire breeders about 1811 focused the attention of breeders on the value of conformation. However, the first definite steps in formulating a score card were taken by breeders on the Island of Jersey in 1834.(4*) Two Jersey cows were selected as models. One of these was thought to be perfect in her barrel and forequarters and the other equally so in her hindquarters. From these two cows the scorecard totalling 34 points was developed and adopted by the Jersey Agricultural and Horticultural Society. The score card for bulls and for heifers totaled 31 points each. In this score card each of the 34 parts received but one point in value as no one part of the cow's body was thought to be of any more importance than any other part. This view point was later changed and in 1875 the scale of points was raised to 100. The same year the score card was adopted by the American Jersey Cattle Club. This was the first dairy cattle score card to be used in the United States.

Date Breed Associations Adopted Score Cards

		Revised
American Jersey Cattle Club	1875 (1)	1927
American Guernsey Cattle Club	1877 (2)	1926
Holstein-Friesian Association	1885 (3)	1923
Ayrshire Breeders' Association	1906 (4)	1931 (5)
Brown Swiss Cattle Breeders' Association	1930	

The most important change made in the old score card besides increasing the sale of points to 100 was to arrange the details in logical order starting with a study of the head and working from front to rear and finally considering the general appearance, weight, size, covering, and color markings. These last items may be taken up first as well as last.

(1*) Mills, John, A Treatise on Cattle.
(2*) Parkinson, Breeding and Management of Livestock.
(3**) Prentice, E. Parmalee, Type in the History of Dairy Cattle. The Nineteenth Century and After, Vol.109, No. 652, June 1931
(1) Vol. II A.J.C.C. Herd Book. (2) Hill, Chas. L. Guernsey Breed.

The main difference between the breed score cards is that the breed associations lay particular emphasis on breed characteristics. These score cards may be better termed breed standards.

For example, the Guernsey Association allows twenty points for secretions, indicating color of products, the Ayrshire score card gives four points for style, and the Jersey score card allows ten points for general appearance.

CONFORMATION IN RELATION TO MILK YIELD

Gowen(1) studied the data contained in the early volumes of the Holstein-Friesian Advanced Registers and he analyzed a large number of Jersey score cards. From this work he draws the following conclusions:

1. Size is very important in milk production.
2. Conformation is nearly if not entirely worthless for predicting butterfat percentage.
3. The milk veins are the best single indication of milk production.
4. The appearance of the udder is more important than the general form of the body taken as a whole.
5. Type to a considerable degree is independent of milk yield.
6. It is far easier to breed for type than for milk production.

AMERICAN JERSEY CATTLE CLUB ADOPTS JUDGING RULES

Definite rulings on interpretations of the score card governing the judges in making awards in the Show Ring have been adopted by the American Jersey Cattle Club. They are as follows:

(1) Hereditary or Functional Defects:

Animals having hereditary or functional defects which includes total blindness in all animals and in all cases of bulls having one testicle will be disqualified by the judge.

(2) Accidential Injuries or Defects:

Animals having partial or temporary blindness, broken horns, broken tail, enlarged knee, hip knocked down or crooked hing legs, will be discriminated against by the judge.

(3) The Udder Defects:

Cows showing evidence of having one or more blind quarters will be disqualified by the judge.

Cows showing an udder unmistakably broken away from the body will be disqualified by the judge. Cows showing weakness in one or more quarters will be discriminated against in accordance with the degree of weakness. Because over or tight-bagging is injurious to the animals resulting in unnecessary breaking away of the udder, great care should be observed by the exhibitor in this connection.

(4) Over Fat or Over Condition

Animals showing over condition (too fat) will be disqualified by the judge. This provision is identical with the action of the Classification Committee of the National Dairy Show with respect to all dairy cattle. The judge will discriminate as to cows about to calve.

(5) Size or Weight

When weight comes within the prescribed limits of the score card, the heavier cow will be favored, all other points being equal.

(6) Groups

In the case of all groups uniformity will be the basis of making awards. And in case of Get-of-Sire Group the age and maturity shall have preference over immaturity in general where quality of both classes are equal.

(1) Gowen, J.W. Milk Secretion

USE OF SCORE CARD

Live stock judging as practised in the show ring by prospective buyers does not make direct use of the score card.

Since each breed association has adopted a score card which shows their standard of excellence, a study of the various score cards enables the student to become familiar with the ideal type of each breed. A dairy cow score card has been developed by the American Dairy Science Association for use in agricultural college to acquaint students with the location and names of the various parts of a cow's body and to fix in their minds the relative value of importance of each part.

Judging implies comparison and competition, since selection is impossible when only one animal is considered. It first requires consideration of one animal or of each animal in the class individually To do this systematically one must make use of knowledge gained from experience with the score card.

Score cards were used by cattle associations at one time in conjunction with the Advanced Registry test but the practise has been discontinued.

ARRANGEMENT OF SCORE CARD

The score card should be arranged with major headings and rather minute details or sub-divisions under each. Some system of cuts should be included on the card to give the beginner an idea of the seriousness of defects found in varying degrees. This is well indicated on the latest Ayrshire score card.

One method of scoring is to make deductions from the perfect score of each part. For example, if the perfect score of the barrel is 9 points the animal being scored may be cut 1 or 2 points, making the corrected score 7 or 8. Another method is to consider separately each point for which a numerial value is given and decide whether this point is perfect (1), very slightly defective (0.9), slightly defective (0.8), defective (0.6), or markedly defective (0.5). Then by multiplying the perfect score for each point by the value given it, the final or corrected score is obtained.

It should be noted that those parts which are the most important from the breed standpoint are given the highest score or in other words those parts receive the highest score which if defective would be most detrimental to the animal or breed. Thus by use of a score card the student not only gains a mental picture of the breed ideal, but he also becomes trained in making careful observations.

The dairy cow score card has many shortcomings and yet its use is warranted under certain conditions, such as teaching the names of the various parts of the body and giving a description of each part. It also gives the relative importance of each part of the cow's body which is listed on the card.

One limitation in the usefulness of the score card was shown as a result of the work done by Graves(1) which indicated that the milk veins on a cow's belly may not be as important as they were once thought to be. When he cut and ligatedthe milk veins on two cows, they produced as much milk as was produced before the operation. This led to the discovery that there are three sets of milk veins, two of which are invisible.(2)

PICTORIAL SCORE CARD

1. Make a pictorial score card for your breed preference.
2. From back numbers of breed papers cut photos or parts of photos to illustrate each item on score card.
3. Arrange photos on blank paper opposite score card items and values.
4. Assemble material in boolet form with cover.

(1) Hoards' Dairyman, December 8, 1916
(2) Cir. 99 U.S.D.A.

CHAPTER III

DAIRY TYPE

Through breeding and selection, both natural and artifical, animals have been developed which produce milk more economically than beef. Since milk is one of our most important foods the relative value of this development is readily seen. Breeding and selection have established definite breeds for milk production purposes and these breeds have been highly developed to produce milk at the expense of flesh. Examples may be found of cows which carry a moderate amount of flesh and yet make a creditable showing in milk production but these are exceptions.

Mills writing in 1776 stated that the Dutch imported yearly from Denmark numbers of large lean cows which when grazed on the rich pastures of Holland yielded a great deal more milk and butter than the common English cows. Dutch cattle required excellent pastures yet were always lean. This was in marked contrast with English cows which soon became fat and produced little or no milk when put on luxuriant pastures.

The following statement shows that dairy breeds were being developed for different purposes at an early date (1776) "A gentleman will choose the cow that gives the best milk in preference to one which yields a larger quantity of less good milk; whereas the latter will answer best to the farmer for fattening calves, lambs and his whole breed of swine."(1)

Type may be defined as the conformation and characteristics of an animal which best fits it for the purpose for which it is to be used.

CHARACTERISTICS OF DAIRY TYPE

The most important characteristics of dairy type which are most closely associated with milk production are body capacity, mammary development and dairy temperament. However, since general appearance and beauty enhance an animal's sales value, more importance is being given to them even though they are probably only slightly, if at all, correlated with producing ability in dairy cattle.

BODY CAPACITY

Capacity which depends upon the organs of prehension, mastication and digestion commonly refers to the amount of food a dairy cow can consume and digest regularly without injuring her future usefulness.

Professor Henry states that 60 per cent of what the dairy cow eat must be used for body maintenance and approximately 40 per cent of her food consumption may be used for milk production. Therefore, the larger the capacity the more food there will be available for milk production or that which is represented by the 40 per cent.

The feeding of the dairy cow differs from that of the beef steer in that the former must stand up under heavy feeding year after year while the latter is fed heavily for only a short time.

Good feeders associate with capacity in the dairy cow a large muzzle with strong lips, for a cow with a narrow or sheep-nosed muzzle may be inclined to go off feed, too easily and often is rather particular about what she eats. Usually a narrow muzzle indicates a lack of spring of rib in dairy cattle. Then too the dairy cow does not have time to chew her food when she is busy gathering it, but must rechew it later. This necessitates a strong jaw as thorough mastication is essential to complete digestion. A strong jaw, however, is of little use unless there is a large paunch in which this food may be stored until she finds time to rechew it and this in turn necessitates a large barrel; one that is long, broad, and deep. However, one should

(1) Mills, John A Treatise on Cattle.

not seriously discriminate against a close coupled cow if she is broad and deep as they often make excellent producers. A long body that is slab-sided and shallow fails to show the desirable kind of capacity and is not associated with continuous heavy production.

Body capacity also includes what was formerly listed under constitution. This includes indications of health, vigor and vitality. A large bright eye, large wide open nostrils, a general appearance of ruggedness and vigor coupled with full crops, thickness through the heart and depth of chest seem to best indicate strength of constitution.

Continuous heavy production demands a strong vitality, not only to maintain milk production but to withstand the diseases which are so prevalent due to the abnormal development of the dairy cow and the conditions under which she must live.

The size of the dairy cow is no indication of strength of constitution. Large cows are just as susceptible to disease as are the smaller ones. The heart must have plenty of working room as the blood must be pumped over the body every two minutes. Since the blood must be purified quickly it follows that the lungs must be well developed and supplied with an abundance of pure fresh air. This necessitates dept of chest and plenty of width through the heart girth and on the chest floor. Swett, of the United States Bureau of Dairying has found that depth of chest is more closely associated with heavy milk production than width of chest.

Size over all is desirable as it indicates strength to carry and digest large amounts of roughages. Efficiency of the digestive system may be partly determined vy the handling qualities of the hide. That is, the hide which shows desirable qualities when grasped between the fingers and palm of the hand will be oily, pliable elastic and of medium thickness. A thin papery hide is not desirable not one that is thick, heavy and hide bound.

Turner(1) made a study on the relation between age, liveweight, and yearly fat production of over 2700 Guernsey cows. He found that there was a direct relation between weight and fat production which would be represented by the equation: Yearly fat production = 0.77 weight - 304.73.

This equation indicates that with an increase of 100 pounds in liveweight accompanying age there is an increase of 77 pounds of fat per year.

However, when age was held constant that was an increase of only 20 pounds of fat for an increase of 100 pounds in weight.

From these figures he concluded that about 25 per cent of the total increase of fat secretion with age is due to the live weight of the animals concerned, whereas the other 75 per cent of the increase in fat secretion with age would be ascribed to the development of the udder by recurring pregnancies.

MAMMARY DEVELOPMENT

The actual process of the manufacture of milk is unknown, but certain characteristics are associated with the heavy production of milk.

The size of the udder and placement of the teats is important both in hand milking and machine milking. Size of udder alone does not indicate capacity for milk production unless quality is present. An udder showing quality is soft, spongy, pliable, and free from lumps. For example, an udder which milks out well, is flabby and much smaller after milking and has many loose folds of skin is said to have quality or to be of good texture. On the other hand a meaty udder or one which lacks quality is still large and hard after milk-

(1) Turner, C.W. 1929 The Relation Between Weight and Fat Production of Guernsey Cattle. Journal of Dairy Science, Vol. 12, No. 1

ing. It may help to restate the theories of milk secretion in order to emphasize the importance of quality in the dairy cow's udder.

Prior to 1850, many held the opinion that milk solids were filtered out of the blood stream by the mammary glands. This view was later found to be incorrect and three major hypotheses have been advanced to account for this process.(1)

According to the firstof these, the cells of the mammary glands break loose bodily and disintegrate in the alveoli to form milk solids. there is considerable opposition to this theory as no such extensive cell multiplication is known to take place in the mammary gland.

The portion of the cells toward the alveoli become loaded with solids, break loose from the base and disintegrate to form milk solids, indluding fat globules, is the second hypotheses.

The third theory, and probably the most commonly accepted one, is that the cells of the mammary glands secrete the materials of the milk solids without becoming detached or destroyed. This point of view is based on the analogy with the other secretory glands in the body.

From these statements it can be readily seen that regardless of which theory is correct, the amount of milk produced or secreted in the dairy cow's udder depends primarily upon the number of active cells present. If the udder contains much fatty tissue or extra flesh the active cells are not only limited in number but they are also hindered from functioning to the best advantage.

Length and breadth of udder is much more desirable than depth which tends toward the pendant type. In order to provide room for the development of the width of the udder the thighs should be thin and incurving. Compare the thighs of a beef cow with those of a dairy cow. The one is well fleshed down to the hocks and the other is lean carrying little if any extra flesh.

Turner (1) states that milk secretion by the dairy cow is regulated by many factors including the abundance of secretory tissue in the udder, the amount of storage space in the udder, the frequency of removal of milk, the volume of blood passing through the udder and the ability of the cows to consume and digest large quantities of feed.

Work done by Swett(2) shows that the udder capacity may vary from three to five gallons which is contrary to the common belief that the capacity for storing milk in a cow's udder is not more than one half pint to each quarter.

His studies also indicates that milk secretion is to a considerable extent a continuous process and that a large portion of the milk secured at any milking is collected and stored within the gland before the milking process is commenced.

In the work carried on by Swett the udders were removed from the cows immediately after slaughtering and the milk drawn by hand. In one case the post mortem milking gave 85 per cent of the amount produced in like periods before death and in another case 49 per cent was secured. However, the gushing forth of milk from an incision subsequently made in the udder of the latter cow indicates that the milking was only partially complete. Swett concludes that the liberation of milk is not entirely dependent either upon a nervous or a mechanical stimulation or upon internal muscular contraction.

(1) Turner, G.W. 1929. The Relation between Weight and Fat Production In Guernsey Cattle, Vol. 12 No. 1, Journal of Dairy Science.
(2) Sweet, 1927 Udder Capacity and Milk Secretion, Vol. X No. 1 Journal of Dairy Science

The attachments of the udder are important. The rear attachment should be high and wide and the forequarters should be carried well forward. Length and levelness of rump is closely associated with a long level floored udder, in the minds of many dairymen.

The milk veins carry the blood from which the cells in the udder derive the ingredients for the production of milk. There are at least three sets of these veins, two of which are visible. These veins should be large, long and crooked. This necessitates large wells so that the blood has free passage way through the walls of the abdomen back to the heart. At one time particular emphasis was given to the development of the escutcheon, but it is now known to bear little if any relation to milk production and we now have many more important indications of profitable milk production. Hooper of the Kentucky Experiment Station has made quite an extensive study of the escutcheon in all breeds of dairy cattle and has found no correlation between the size or shape of the escutcheon and the production of milk or butter-fat.(1)

DAIRY TEMPERAMENT

This may be expressed as the ability which the dairy cow possesses of consuming and digesting large amounts of feed, using the minimum amount for body maintenance and converting the balance into milk.

Princess Carlotta, a Holstein cow owned by the Missouri Experiment Station in one year produced 18,405 pounds milk. The comparison of the food constituents of this milk with the carcass of a 1250 pound steer is as follows:

18,405 lbs. milk	
Protein	552 lbs.
Fat	618 "
Sugar	920 "
Ash	128 "
	2218 "

Steer Weight 1250 lbs.	
Protein	172 lbs.
Fat	333 "
Sugar	00 "
Ash	43 "
	548 "

The temperament of the beef cow and the dairy cow is in striking contrast; the one utilizing a large amount of her food for meat production and the other for milk production. Eckles found that the Holstein cow mentioned above produced in one year's milk production as much protein as was found in the bodies of three steers weighing 1250 pounds each, nearly as much fat as found in the bodies of two steers, as much ash as the bodies of three steers and contained besides 920 pounds of milk sugar worth as much as ordinary sugar for food. Some dairy cows inherit a tendency to lay on flesh at the expense of milk production. Since all dairy cows have not inherited to the same extent the characteristics which determine milk production and because there is little correlation between type and producing ability we find it necessary to use the Babcock test and the milk scales in order to determine the profitable and unprofitable producers.

There are many indications of dairy temperament. Chief among these is a broad face and dished forehead, large bright eyes, freedom from excess flesh, angularity, length of body and fineness of bone. A nervous disposition or temperament should not be confused with dairy temperament. The tendency to become too easily excitable is not a desirable trait in dairy cows.

Dairy temperament is best indicated by the blending together of the parts of an animal which indicate strong constitution, large capacity, and superior mammary development resulting in symmetry and balance of form coupled with the ability to produce the maximum amount of milk with the least expenditure of food for body maintenance.

(1) Kentucky Agri. Exp. Station Bul. 234

IMPORTANCE OF DAIRY CHARACTERISTICS

Eash one of the dairy characteristics point is vital and each is dependent upon the other. If one is lacking or under developed the dairy cow cannot do her best work. Nor can anyone part be developed at the expense of another without eventually showing discouraging results.

In summarizing, dairy type may be defined as follows:

(1) The spare angular form carry little surplus flesh.

(2) The extraordinary size and development of the udder and milk weins.

(3) The marked development of the barrel in proportion to the size of the animal.

(4) A form showing the three desired wedges or so called triple wedges.

The first of the triple wedges is shown by drawing lines from the shoulder points to meet over the shoulder top. Another wedge may be obtained by drawing lines from the hips to meet at or slightly in front of the shoulder top. The side wedge is seen by drawing one line along the back of an animal and another along the underline. They will meet at some point in front of the animal. The body of the dairy cow narrows wedge like from the rear toward the front.

The triple wedge shape is not always shwon. For example, it is rarely developed to any great extent in heifers, but it should appear after the heifers freshen and have milked off some of their surplus flesh. Dry cows may be too well fleshed to show all three wedges to best advantage and some cows have exceptionally deep chests which detract from the side wedge.

COLOR FADS

Color markings or color fads have played an important part in the development of dairy cattle, but not always to be the best advantage of the breeds.

Mr. Charles L. Hill in speaking of color of Guernsey cattle says "The color of the nose in no way denotes intrinsic merit in the animal. The buff nose is fashionable in the show ring but it is safe to say that this fashion has not been helpful to the Guernsey breed. It is well known that many of the brindles and dark cows have been among the best cows of the breed."(1)

According to Allen when Ayrshires were first imported into the United States about the year 1831 they differed in appearance from those imported later. The earlier animals were usually deep red in color or brown flecked with white and having mostly black noses. Later the fashion changed to colors of a lighter shade of red. Again speaking of Ayrshires he says, "They are selected from parents of the best quality and few are brought up that are not of the fashionable color."(2)

Writing in 1881, W. P. Hayard stated that Jerseys were formerly of a much larger size weighing from 1000 to 1200 pounds and were usually of a dun color. Then came the fashion of having them smaller and finer and of a cream color mostly blotched with white. The next color sought for was a deer or fawn color and all the better if it were shaded in the flanks and about the head with black. Solid colored animals being in the minority became most fashionable. In breeding for solid colors some would come solid colored tipped with black and thus the next fashion was to have solid colors with "black points" black tongues and black switches. The next color sought was for the squirrel grey.(3)

(1) Hill, Charles L. The Guernsey Breed, page 58
(2) Allen, American Cattle.
(3) Hayard, W. P. The Channel Islands.

Color fads may have had their origin when cattle were kept only for draught purposes for our first description of Roman Cattle written in the first century before Christ states that "In color the strongest is black, the next red, the third pale red, and the fourth white".(1)

Many centuries later English breeders thought red cattle the best both for draught and milk purposes. They said white cows went dry sooner than black or red cows and grey and white oxen were deemed fit only for slaughter.(2)

(1) Prentice, E. P. Type in the History of Dairy Cattle, The Nineteenth Century and After, Vol. 109, No. 652, June 1931.
(2) Mills, John. A Treatise on Cattle. (1776)
Kentucky Bulletin 234
Washburn, Productive Dairying
VanPelt, How to Judge the Dairy Cow.
Cir. 52, Penna. Agri. Expt. Station
Leaflet 52, Purdue University
Cir. 45, Kansas Agri. Exp. Station
Cir. 96, Kentucky Agri. Exp. Station
Misc. Cir. 99, U.S.D.A.
Bul. 535, Wisconsin Agri. Exp. Station

CHAPTER IV

JUDGING DAIRY CATTLE

Dairy cattle judging is an attempt to evaluate the animals in a given class according to a definite ideal in the mind of the judge.

DEVELOPMENT OF JUDGING

When the need for improving dairy cattle first became apparent breeders began looking for some system of judging by which their animals could be judged on external appearance. It was early realized that there must be some relationship between the form and function of an animal. This quest for knowledge led to many theories with regard to the basis for the selection of cows for milk production. One of the best noted of the earlier investigators was Guenon, a Frenchman, who after several years of observation and study concluded that all dairy cows could be classed with respect to milk production on the basis of the form or size of the escutcheon or milk mirror as it was commonly called. So convincingly did he speak and so thorough was his work that his system was accepted without a question and he was given all sorts of medals and honors and a life pension by the French Government.

Later a society for the promotion of this theory was formed in Philadelphia but was soon discarded in favor of a new system with the score card used as a basis. When the first book of 7-day butter records for the Jersey breed was published in 1884, one of the editors stated the records disproved the Guenon theory.

A study of 476 records of dairy cows at the Kentucky Experiment Station failed to reveal any correlation between the shape or the size of the escutcheon and the production of milk and butterfat.(1) The Guenon theory although discarded after a short time served a very useful purpose in that it started a definite train of thought along the lines of dairy cattle selection. This lead to a detailed study of the animal form and the relation of the form to the function of the dairy cow.

Each breed association drew up a score card assigning definite values to each part of the cow's body. These score cards, however, hav little practical value from the standpoint of judging. Exceptions may made to this statement when the supplementary schedules of the Ayrshire score card and the rules of interpreting the Jersey score card are considered. They do tend to indicate certain characteristics in which each breed may excel the others. For example, although three breed score cards mention secretions and list points for the abundance and color of the secretions, only one association (Guernsey) lays particula emphasis upon this characteristic by giving it a value of 20 points. Again only one breed association emphasizes style (Ayrshire) by assigning a value of 4 points for this characteristic. Neither of these characteristics mentioned indicate quantity or quality of milk production for the score card of the breed which produces milk of the highest quality does not mention secretions nor does the score for the breed which produces the largest quantity of milk mention style.

Score cards do have a certain value which will be discussed later. Some attempts were made to use score cards in show ring judging, but the results were so unsatisfactory that they have been discarded for this purpose.

Present day judging is based entirely ypon the external appearance of an animal by association certain characteristics with large milk production. These characteristics which indicate high milk production were taken up under the three headings: Body Capacity, Mammary Development and Dairy Temperament.

(1) Bul, 234, Kentucky Agro. Exp. Station.

The external appearance of a cow may be over emphasized in judging, for judging by conformation alone does not indicate the actual milk or butterfat production. Experience proves this. The way to find out how fast a horse will trot is to put him on the track and not ask someone to tell the horse's speed by merely looking at him.

It is known that wild animals are so constructed as to be best adapted to the environment in which they are found. Since our dairy cows in the process of development have been subjected to domestication they have passed through important changes in form which has better fitted them for the use of man. Not only may the form as a whole be classified as to type but the various parts of the body have their special uses and values. For example, the conformation of an animal clearly indicates whether it belongs to the dairy or beef type, and the various parts of an animal's body also indicates the type to which it belongs. It does not require much experience to classify according to type an animal with a well fleshed back and hindquarters not one showing angularity of form and a well developed mammary system.

The way to determine the value of the dairy cow is to weigh and test her milk, for no one can estimate with any degree of accuracy her butterfat production by observation alone. It is easy to tell the difference between the beef cow and the dairy cow. One may also pick out a 200 pound butterfat producer in comparison with a cow having a record of 800 pounds of butterfat, but it requires more than a knowledge of conformation to choose between a 500 and an 800 pound butterfat producer. The judge who is placing cows on conformation never attempts to estimate the production of milk and butterfat but classifies the entries on the way they conform to the type set up by the breed association.

Judging is of value to the breeder in that it helps him to improve the appearance of his herd by mating those animals which excel in type and conformation. The Jersey breeders early chose Brown Bessie as their ideal, and all typical Jerseys were supposed to look as much like her as possible. The Holstein breeders selected Pauline Paul for their standard of type and more recently have created a model of an ideal Holstein cow and bull. The cows first chosen because of good type were high producers, but it does not follow that all animals which resemble them in type will also be high producers.

The man who buys calves out of show ring animals is taking some chance of securing profitable milkers unless the dams are noted for production as well as conformation. However, all high producing cows have certain distinguishing characteristics which are associated with high production, and it is these characteristics for which we look in picking prize winners in the show ring.

THEORY OF JUDGING CATTLE

Judging is not an exact scient in which determinetions can be made with precision. The results obtained are more or less approximate depending upon one's ability to observe and evaluate the desirable and undesirable points in conformation.

SYSTEMATIC STEPS IN JUDGING

Judging consists of making a thorough examin tion of each animal and then comparing each with the best in the class or with the ideal of the breed. The animals are then arranged or placed in order of merit.

1. Information

In order to make consistent placings one must be familiar with the ideal breed type and with the score card of the breed and also with what constitutes merit of undesirable characteristics.

2. Observation

One may know what the breed association has selected as its ideal but unless he has developed the ability of close observation he cannot associate this ideal with the animals at hand. The judge must compare the animals in the class with the ideal in mind which calls for the keenest observation.

3. Comparison.

It is relatively easy to note good points and defects in a class of animals but it is extremely difficult to properly balance or evaluate them. The ability to do this comes only with experience.

4. Conclusion.

This consists in weighing and balancing the various good and undesirable points observed before making the final placing. Oral reasons may or may not be given following the placing but it always gives greater satisfaction to the ring side if the judge can justify his placings with clear concise reasons.

SYSTEM DESIRABLE IN JUDGING

A regular method of procedure not only inspires more confidence in the judge himself, but the ring side followers are more apt to be satisfied if they note the judge is going about his work with some system. A definite method usually results in a shorter time being required to place the animals in the ring. However, if the class is close, it is essential to take all the time necessary to decide how the animals should be placed.

Regularity in methods also fixes the first impression in one's mind and after a little experience is gained the first impression is very apt to be correct. Be sure the first impression is gained under fair conditions so that one does not unfairly discriminate against any animal. Experience showmen realize the advantage of having the jud. gain a favorable impression of their entries so they take measures to bring their animals into prominence by coming into the ring either first or last or by placing their entries in conspicuous positions. At other times an inferior animal may be brought in quietly or among others if possible in order to cover its faults, hoping that it may be placed higher than it should be.

Judges should guard against the posing of animals to cover up faults or to over emphasize desirable traits. Parading each class around the ring shows each individual under normal conditions. Overfitti of entries, especially of the younger animals, should be discouraged and discriminated against by judges.

It is always desirable to view each class of animals from a distan of 15 to 20 feet especially if the animals are standing head to tail. This makes it possible to disregard to a certain extent the individual parts of the body and to view the animal as a whole thus permitting a comparison of the symmetry of form, the blending of body lines, and the conformity of each animal to a definite type. Minor faults are forgotte for the time being and the general appearance and the relation of one part of the body to that of another is considered.

DAIRY COW JUDGING CONTEST AT NEW YORK STATE FAIR, 1919

Nine cows owned in the state were chosen from herds numbering 1750 head. Their milk production ranged from 4,454 to 20,800 pounds of milk in a year with nearly 2000 pounds difference between the records. Over seven thousand people tried to pick the highest producers.

12 persons guessed 5 cows correctly
103 persons guessed 4 cows correctly
525 persons guessed 3 cows correctly
1496 persons guessed 2 cows correctly

This emphasizes the value of the milk scales and the Babcock test thedairy judges which do not guess. One third of all the estimates made at the fair never placed a cow right and only one in five correctly placed two cows in order of production.

In 1920(1) a similar contest was held with 9 animals when 8,010 people tried to place the animals in order of production.

3449 persons did not guess one correctly according to production
2765 persons guessed one correctly
1210 persons guessed 2 correctly
415 persons guessed 3 correctly
132 persons guessed 4 correctly
32 persons guessed 5 correctly
7 persons guessed 6 correctly

JUDGING HEIFERS

The judging of heifers is much more difficult than judging cows largely because they are not fully developed and also because of the changes which take place in conformation from calfhood to maturity. The essential points to consider in placing heifers are length and depth of body, strength of topline, fullness of chest and barrel, development of udders and placement of teats, quality of bone and freedom from excess fleshiness. Heifers should be large for their age and should show vigor and a thrifty condition of growth.

Although heifers naturally may seem a little heavy over the shoulders or a little too smooth over the loin and rump yet over fleshing is to be severly criticized and animals showing over conditioning will be discriminated against or disqualified in the show ring.

JUDGING BULLS

A typical dairy bull should show vigor and masculinity. His neck should be medium in length with a prominent crest. He should be large for his age and have a long deep body with a full chest and a broad level rump. Strength of back is important but he should not show any indication of meatiness or a lack of dairy temperament.

WHY JUDGES MAY DIFFER

The judging of dairy cattle is largely a matter of personal opinion. For example, one judge may consider a low loin a more serious fault than low pin bones or a weakness back of the shoulder tops, while another judge would think differently. Again judges may differ as to the relative importance in udders of well developed rear quarters or equally well developed forequarters if found in different cows which were otherwise evenly balanced. In some cases the breed score card may be used as an authority for a certain placing if different numerical values have been given for the points under discussion. However, a dairy cow seriously lacking in udder development should not win in the show ring regardless of how well developed she is in other parts of her body.

CHANGES IN SHOW RING METHODS

At the present time there is a certain amount of constructive criticism concerning the methods used in the judging of dairy cattle in the American show ring where the awards are based entirely upon type.

Quite a few breeders think some consideration should be given to production as well as to body conformation in showring competition

(1) See Photos in Hoard's Dairymen, May 7, 1920

Certain members of the United States Bureau of Dairying have worked out a plan for use in the show ring which includes both type and production. Although the proposed plan may seem somewhat cumbersome and complicated it does have considerable merit and it may lead the way to the inclusion of producing ability as well as general appearance in the awarding of ribbons and prizes in competitive showing.

In 1931 the Nebraska State Fair first started production requirements as a prerequisite for showing and other large fairs have since adopted similar requirements. Jersey breeders in Tennessee have held a state wide production show that has attracted considerable attention for several years.

Officials of the National Dairy Exposition in 1931, offered gold, silver and bronze medals for the first, secornd and third prize animals respectively in the four cow classes of each breed if the Advanced Register or Register of Merit records exceeded the requirements by 60 per cent.

Ellenvale Bonheur Ormsby Posch 3rd, the grand champion, and Miss Lassie Ormsby, the first prize aged cow, were awarded gold medals, these were the only gold medals awarded among all breeds.

CHAPTER V.
HOLSTEIN-FRIESIAN CATTLE

Holstein-Friesian cattle origniated and were developed in the provinces of North Holland and West Friesland which lie on the either side of the Zuider Zee.

From the earliest historical accounts of the Friesian people they have dwelt upon the shores of the North Sea and possessed herds of cattle from which they have derived their chief means of support. Their history commences about 300 years before the Christian era.

Two hundred years later, a German Tribe settled on the shores of the North Sea near the Friesians. They first occupied an island which they named Batavia. They too were breeders of cattle, but whether they brought their herds with them or secured them from the Friesians is not known. The popular theory is that the Batavians brought their herds with them and that their cattle were black. These were crossed with the white cattle belonging to the Friesians resulting in a piebald breed. This theory regarding the origin of the Holstein-Friesian breed is questionable, but whatever may hve been the case, the cattle of these tribes since 100 B.C. appear in history as identical.

The Friesians and Batavians at once applied themselves to the draining of their marshy lands creating meadows on the reclaimed soil which they first protected from inundations by raising dikes. This practise is still followed at the present time differing only in the methods and the permanency of their work.

This has been necessary because three-sevenths (1) of Holland is below sea level. The rivers have but little fall and therefore drop sediment along their lower levels, especially at their mouths. The land bordering these rivers becomes so saturated with moisture that it must be drained in order to be productive. Thus the topography of the land has largely determined the type of Holland's agriculture. Many fields are kept permanently in grass, making it essential that cattle be used to convert this unsalable roughage into milk.

EARLY DEVELOPMENT

The Dutch farmer depended upon his cows to consume roughage from land in permanent pasture converting it into a product which could be easily transported. As the grass was very luxuriant the cows were selected for capacity and a rather large frame work. The kind of roughage also resulted in large amounts of milk with a medium to low butterfat content which was well suited for the manufacture of cheese. The abundance of feed and the method of handling has probably materially influenced the temperament of the breed by making them very quiet and easily handled.

Eastward from Holland this breed has spread more extensively than southward. At the mouth of the River Dwina in Russia, nearly under the Artic circle it has produced the highly prized breed known as the Kolmogorian. Professor Low, writing in 1840, states that early importations of Dutch cattle exercised great influence on the formation of the Teeswater cattle afterwards called the Shorthorn.

Between 1707 and 1761 John Mortimer published "Whole Art of Husbandry" in which he says - "The best sort of cows for the pail are the long legged, short horned, cows of the Dutch breed which are to be had in some places of Lincolnshire, but most used in Kent, only that they are tender and need very good keeping."

EARLY IMPORTATIONS

Holstein Cattle were introduced into this country about the year 1625 by the East India Company which brought Dutch settlers into New York. Other importations followed but, not appreciating the value and

(1) National Geographic March 1923

importance of purity of blood in dairy cattle, they were mixed with other breeds, thus losing to a great extent the benefits of their dairy characteristics.

The first permanent introduction of this breed was made by W. W. Chenerery, Belmont, Mass., just prior to the Civil War. Due to similarity in climatic conditions of Holland and New England it was thought that Dutch cattle would be well adapted to New England.

In 1852 Chenery purchased a Holland cow from the master of a Dutch sailing vessel. Her good qualities let to another importation of a bull and two cows in 1857 and four cows in 1859. However, all of these animals with their progeny with the exception of one bull were slaughtered by the State of Massachusetts on account of a contagious disease.

The Association of Breeders of Thoroughbred Holstein Cattle was formed in 1871. This was the first breeder's association for this breed to be organized in any country. At the organization meeting W. W. Chenery was elected President and F. L. Houghton, Secretary. It was decided that their imported black and white cattle should be called Holstein and this adhered to until the Holstein-Friesian Association was formed in 1885. Although the official name is Holstein-Friesian both in the United States and Canada cattle of this breed are commonly called Holsteins now.

In 1871, Thomas E. Whiting imported five cows and one bull from North Holland. The committee from the Holstein Association would not accept all of the animals for registration because they did not conform to the required color markings. Later Chenery returned to Holland for more cattle but chose only black and white cattle from the province of Friesian. He claimed they should be called Friesian cattle not Dutch or Holstein.

The controversy between Chenery and Whiting was carried on with much bitterness and real issues, name and boundaries of the homeland of the breed, were finally hidden. At one or more fairs in Massachusetts through the influence of Chemery, the cattle belonging to Whiting were excluded from competition. Mr. Whiting sometimes triumphed and the cattle owned by Chenery were excluded. Finally Mr. Chenery recognized the importance of numbers so he defined his breed as including all the "improved varigated black and white cattle bred in North Holland, in Holstein and in all the intermediate territory."

Mr. Chenery's cattle seemed to win in popularity for a while end Whiting sold his cattle to the Unadilla Valley Stack Breeders' Association, N.Y. The controversey over the name and color markings was continued by the new owners. In 1877(1) the Dutch Friesian Association was formed. They published the Dutch Friesian Herd Book in 1880 and a little later started the Advanced Registry system devised by Solomon Hoxie. The new Association limited the breed to the black and white varigated cattle of North Holland and Friesland.

Between the years 1873 and 1877 neither group would exhibit at cattle shows in the same classes, but from 1877 to 1880 a period of neutral friendliness followed and both clubs prospered.

Black and white cattle have been known in both Europe and America as "Holland Cattle" - "North Hollanders" - "Dutch Cattle" - "Holsteins" "Dutch Friesians" - "Netherland Cattle" - and "Holstein-Friesians".

In 1880 an unsuccessful attempt was made to unite the Associations and the former controversey was resumed.

In April 1885 a joint committee of the two associations met and on May 25, united under the name of Holstein-Friesian Association of Americ. After a long discussion the Holstein Association agreed to adopt the system of Advanced Registry originated by Solomon Hoxie and this resulted in the appointment of two breed secretaries. The Holstein Association numbered 206 and the Dutch Friesian 91 members at the time of the uniting.

(1) Dutch Friesian Herd Book Vol. 2, page 21.

A third association known as the American Branch of the North Holland Herd Book was organized because of a ruling which prohibited Hollanders from acting as importers of cattle into the United States. Three volumes of the herd book were published, the last in 1892. Finally the Holstein-Friesian Association accepted the animals registered in the new association and the American Branch of the North Holland Herd Book was disbanded.

Looking back at the early controversey the question of a name may seem to have been a small matter to quarrel about. Yet it is interesting to note that in 1918, at a meeting of breeders of Holstein-Friesian cattle in England, it was voted to drop the word Holstein from the title of their organization which was to be known in the future as "The British Friesian Cattle Society". A similar action has been taken by the breeders of black and white Holland cattle in New Zealand and South Africa(2). Possibly the time will come when black and white dairy cattle in this country will be known as "American Friesians" instead of Holstein-Friesians.

The Western Holstein-Friesian Association was incorporated in December 1892 in Kansas. It published one herd book. This organization was directly responsible for lowering the membership fee in the Holstein-Friesian Association of America from $100 to $25. It was also responsible for the ruling which permitted limited membership by corporations and firms upon the payment of one membership fee. This association consolidated with the Holstein-Friesian Association of America in 1898.

In 1925, the Holstein-Friesian Registry Association, Inc., was formed with its office in Harrisburg, Pennsylvania.

EARLY PENNSYLVANIA HISTORY

Holstein-Friesian history began in Pennsylvania by the importation from Massachusetts in 1870 of a pure bred bull by the Doylestown Agricultural and Mechanical Institute in Bucks County.

Other men to establish their first herds were Mathew Giboney and William Steckel of Doylestown; D. D. Tracy of Erie; Edgar Huidekoper of Meadville; William M. Singerly, of Philadelphia; Lackawanna Breeders Association, at Waverly,; Powell Brothers, Springboro. Huidekoper gained much publicity through his bull, Billy Boelyn, which was never beaten in the show ring in Pennsylvania, New York and adjoining states. This bull was imported by Gerrit S. Miller in 1876.

From 1852 until 1905, total of 7,757 animals were imported from Holland. No importations have been made since 1905 on account of the prevalency of foot and mouth disease in Europe. The change in the ideals of American breeders with regard to breed type played an important part in limiting the number of cattle imported.

BREED CHARACTERISTICS

The Holstein Friesian ranks as one of the heaviest breeds of dairy cattle in the world ranging in weight from 1200 to 1700 pounds for females and 1800 to 2500 pounds for males. The average weight for females is about 1300 pounds although there are several Holstein-Friesian cows which have weighed over a ton. Spring Brook Bess Burke 2nd and her graddaughter, Wisconsin Forbes 5th weighed 2,325 and 2,240 pounds, respectively. Sixteen mature cows chosen at random from The Pennsylvania State College herd averaged 1363 pounds in weight.

The color of this breed is always black and white or white and black showing five white points which include the switch and feet.

(1) Biography of Solomon Hoxie

Upwards of 97% of the cattle in Holland are black and white and this was the main reason for adopting the color markings. Prior to 1750 the prevailing color of Dutch cattle was red and white. Either from fancy for the color or from the belief that black and white animals were better milkers, breeders in the province of Friesland increased their number until now black and white is the prevailing color.(1)

The color markings which bar animals from registration are:(2)

1. Solid black or solid white.
2. Solid black belly.
3. Switch solid black or black and white mixed.
4. Black and white intermixed to give grayish appearance, or color other than distinct black and white.
5. Black on one or more legs beginning at the hoof and extending to or above the knee or hock.
6. One or more legs encircled with black touching the hoof.

In uniformity of mammary development the Holstein ranks quite low. She carries a very large udder but too often the udder is tilted or pendant with the teats closely bunched. Bell shaped teats are often due to old age and heavy production. Good sized teats are desirable, but those which are very large often result in more difficult milking than those of medium size. The shape of the udder when pendulous is often due to its breaking away from the body in old age or in very high producers where the muscles relax on account of the heavy weight of the udder.

Sloping rumps and tilted udders are thought to go hand in hand which is one reason why Holstein breeders are not laying special emphasis on straight level rumps.

Having descended from Bos Primigenius the Holstein has a long somewhat narrow face, showing but little dish in the forehead.

In disposition they resemble somewhat the beef breeds, being quiet and very easily handled. They are rather easy feeders, consuming large amounts of roughage.

The calves average about 90 pounds in weight at birth, although often going over 100 pounds. One male calf dropped at the Pennsylvania State College herd weighed 142 pounds at birth. They are much easier to raise than the calves from the smaller breeds and often in the case of grades make profitable veal.

In a feeding trial at the Ohio Station it was found that Holstein bull calves that had been rejected as herd sire prospects could profitably be converted into steers and fed for a number of months to a desirable market finish, instead of being sold cheaply as bull calves on the market. A return of $10.83 per steer over feed costs was realized during a 154 day fattening period, even though no silage was fed, showing that such dairy steers sold $1.00 per hundred pounds below a well finished lot of Aberdeen-Angus steers that were sold at the same time.

Since the Holstein-Friesian produces the greatest amount of milk, it necessarily follows that the percent butterfat does not rank as high as the lower milk producing breeds. The butterfat globules are the smallest of any dairy breed which fact handicapped the breed's development before the invention of the centrifugal separator. However, the size of the fat globules resemble those in human milk more closely than do the globules in the milk of other breeds thus giving the Holsteins an advantage in this respect. The milk is low in color which is no handicap in butter or cheese making as artifical color may be added, but it does give the milk an appearance of an apparent lack of quality.

ADAPTABILITY

There are certain places where the Holstein cow seems to fit in better than other breeds.

(1) Spier, John. Early History of the Ayrshire Breed, page 29.
(2) Instructions for preparing applications for Registry & Transfer, p.8

As a market milk producer she is in great demand and will continue to be until the consumer is willing to pay for milk on the basis of the butterfat and solids-not-fat content.

For the production of cheese, milk from the Holstein seems to be largely used although there is a chance of improving the cheese by the addition of milk richer in butterfat.

Again for condensed milk Holsteins are largely preferred chiefly because of the relation of the solids-not-fat to the fat content and also because of the large quantity of milk produced.

Holsteins are also very well adapted for the production of milk for infants and invalids because of the small fat globules and medium butterfat content.

NATIONAL HEADQUARTERS

Madison, Wisconsin, is now the home of the Advanced Registry and Extension department. Horace W. Norton, Jr., is Superintendent of Advanced Registry. Houghton Seaverns is Secretary of the Association and has charge of registration and transfers. His office is located at Brattleboro, Vermont.

ADVANCED REGISTRY SYSTEM

It was stated before that the Advanced Registry System was established by Solomon Hoxie of the Dutch Friesian Association and later adopted by the Holstein-Friesian Association.

The first Advanced Registry record appeared in 1887 with Solomon Hoxie as editor. In it he stated, "There is yet to be a science of cattle selection and cattle breeding". The first volume not only contained records of the cows entered, but also their description, weight and seven measurements of each cow. Vol. 1 contained 350 cows with their records and 31 bulls which to be entered, had to have sired 3 A.R. daughters from different dams. Each animal was examined by an inspector appointed by the Association.

The first records gave only the milk production and later the churn test was added. Mr. Chenery's cow Texas Star milked 70 pounds in one day and attracted considerable attention. Dowager 7, owned by C.S. Miller, Peterboro, New York, was the first Holstein cow to complete a yearly record. On two milkings daily she produced 12,806 pounds of milk. Crown Princess, another of Mr. Miller's cows, gave 14,877 pounds of milk and her daughter Echo was the first cow to go over 20,000 pounds having yielded 23,775 pounds of milk. Two years later (1885) the foundation cow, Clothlide, became the breed champion with a production of 26,081 pounds of milk. She was owned by Smiths & Powell, Syracuse, N.

It was not until the early eighties that the production of butterfat received much attention and although a number of cows were tested by the churn test, a cow's ability as a producer of butterfat could not be accurately determined until the invention of the Babcock test in 1890. In 1893 the Holstein-Friesian Association sanctioned the use of the Babcock test and in 1894 asked the State Agricultural College and Experiment Stations to supervise the production records.

The summaries for all long-time tests completed to December 31, 1932 show that 32,144 yearly tests of Holstein-Friesian cows and heifers of all ages average 16,765.4 pounds of milk 3.4% fat and 569.9 pounds of butterfat. In the ten-month's division 11,607 tests average 14,018.1 pounds of milk and 474.2 pounds of butterfat. The average butterfat test for this group is 3.38%.

This breed has more 30,000 pound yearly milk records (130 up to July 1932) and 1000 pound butterfat records than all other breeds combined. On November 1, 1932 there were 180 cows with a yearly production

(1) Dairy Science Journal July 1929, Official Testing with Dairy Herds.

of 1000 pounds of butterfat or over in the United States and 25 such cows in Canada. The number of 1000 pound butterfat producers has doubled since 1924.

Records were first made for yearly milk production but later short time churn tests became popular. With the common use of the Babcock test seven-day testing increased very rapidly reaching its peak in 1921 when 14,099 seven-day records were made. Until 1918 a cow had to meet the seven-day requirement before entering a semiofficial yearly test. Starting in 1902 the Holstein-Friesian Association began the practice of awarding prize money for long time tests. This may have played a minor part in emphasizing the importance of yearly tests but since 1921 interest in seven-day testing has declined rapidly. In 1927 for the first time the number of yearly records exceeded the number of seven-day tests. Only 209 tests were reported in the seven-day division for the year 1931 and this phase of testing has been discontinued.

Prior to 1894 butter records were based upon 83 1/3 per cent fat but in order to conform with the World's Fair rules in Chicago the standard was lowered to 80 per cent fat.(1) The American Dairy Science Association at one time tried to establish the standard at 85 per cent fat. For years, only the Holstein-Friesian Association officially published records in terms of butter equivalent but commencing with the publication of Volume 41 of the Advanced Register Year Book the pounds of butter equivalent were dropped.

The Advanced Register Year Book or Blue Book as it is commonly called is the annual publication of the Advanced Registry Department of the Holstein-Friesian Association.

Volume 43 of the Blue Book, reported all Advanced Registry tests completed during the year ending December 31, 1931. In addition to the list of records reported for the year, Volume 43 includes the lists of active sires and dams with their daughters; the list of cows producing above 960 pounds of fat in 365 days and those producing above 720 pounds of fat in 305 days and the several lists of leaders in the different divisions.

Only bulls having not less than four daughters, either A.R.O. or A.R.O., or a combination of the two were eligible to entry in the first 39 volumes of the Blue Book. Now all sires having one or more daughters that have completed A.R. tests during the official testing year are included in the Blue Book for that year.

Commencing with Volume 39 a consolidated or key volume is to be published every five years, the next being Volume 44.

HOW TO USE THE ADVANCED REGISTER YEAR BOOK

The names in bold-faced type are the names of the sires alphabetically arranged. Following the name of each sire is the Advanced Register number if he has one and then comes the Herd Book or Registration number In the first parenthesis following the sire's name will be found five numbers, for example (19-16-4-6-16).

The first indicates the number of Advanced Register daughters.
The second indicated the number of A.R. Official daughters.
The third indicated the number of Semi-Official daughters.
The fourth indicates the number of sons that are Sires of Tested daughters.
The fifth indicates the number of daughters that are dams of Tested daughters.

In the second parenthesis will be found the name of the bull's sire
The names of the tested daughters of each sire are given beneath his name. The name of each daughter is followed by her Herd Book number separated by a dash from the volume of the Advanced Register in which the record appearing may be found.

(1) Advanced Registrery Year Book 1894 to 1902, p. 5

If a letter appears following the volume number it refers to the classification (A-B-C) according to number of milkings. In italics following the list of daughters with records are the names and registration numbers of the sons that are sires of tested daughters and of the daughters that are dams of two or more tested daughters.

PRODUCTION REQUIREMENTS FOR ENTRY IN THE ADVANCED REGISTER

Production requirements in the long time tests are based on age at time of calving, length of record and frequency of milking. All such tests are limited to one lactation period.

Advanced Registry Requirements (1)

Age	7-day test	10-month's division Classification A	Yearly Division Classification A
2 YEARS	10 lbs. fat	325 lbs. fat	390 lbs. fat
3 years	12 lbs. fat	355 lbs. fat	420 lbs. fat
4 years	14 lbs. fat	385 lbs. fat	450 lbs. fat
5 years	16 lbs. fat	415 lbs. fat	480 lbs. fat

Classification A are tests in which the cow may be milked four times daily throughout the year.

Classification B are tests in which the cow is milked only three times daily after the first 45 days.

Classification C are tests in which the cow is milked only twice daily after the first 45 days.

Age classes:

There are seven age classes based on age at date of calving:

Junior two-year old - Under 2½ years
Senior two-year old - 2½ and under 3 years
Junior three-year old - 3 and under 3½ years
Senior three-year old - 3½ and under 4 years
Junior four-year old - 4 and under 4½ years
Senior four-year old - 4½ and under 5 years
Mature - 5 years old and over

CALVING REQUIREMENTS

Before a record is accepted for any cow in the ten-month's division she must drop a calf within a period not exceeding fourteen months from the date of birth of the calf born prior to the beginning of the test.

In case of premature birth the calf must have been carried not less than 200 days. If a cow fails to meet the calving requirements in the ten-month's division, she is eligible to enter the yearly division.

MONTHLY AND BI-MONTHLY TESTS

Semi-official tests may be conducted according to one of three plans to be chosen by the owner.

a. Monthly official tests of 48 hours duration.
b. Monthly official tests of 24 hours duration.
c. Bi-monthly official tests of 48 hours duration.

Each test must be preceded by a preliminary milking and daily milk weights must be furnished at the close of each month for all cows on test.

(1) Holstein-Friesian Advanced Registry Rules 1932

HERD IMPROVEMENT REGISTRY

The purpose of Herd Improvement Registry is to obtain records on an owner's entire herd. Under this plan all cows in the herd are tested but only the records on registered cows are reported to the Association.

The Herd Improvement Test was established January 1, 1928 and four volumes of the Red Book has been published. In Volume 4 production records are reported for every cow in the herd as in the preceding volumes but only those cows that were members of the herd for ten months or more are included in the herd average. The others appear in a supplementary list. The Ayrshire Breeders' Association adopted this form of test in 1926, The American Jersey Cattle Club in 1929 and The American Guernsey Cattle Club in 1930.

Volume 3 of the Red Book, with 229 herds represented, includes 4,635 cows which average 10,940 pounds of milk and 366.7 pounds of butterfat. The average test for these cows was 3.35 percent butterfat.

VALUE OF ADVANCED REGISTRY RECORDS*

Some idea of the value of Advanced Registry records may be obtained by an analysis of figures from public sales. The following figures were prepared from data published in the Holstein-Friesian World including all available reports of public sales herd during the four years 1925-1928 and representing a total of 17,291 registered Holstein-Friesian cattle.

		Average per head
903	cows with long-time records brought	$ 486.63
1,191	cows with short-time records borught	261.54
2,982	cows untested but from tested dams brought	223.54
5,899	cows untested and from untested dams brought	183.57
575	heifers from long-time record dams brought	272.80
649	heifers from short-time record dams brought	158.33
2,533	Heifers from untested dams brought	103.36
813	bulls from long-time record dams brought	425.25
730	bulls from short-time record dams brought	211.31
1,016	bulls from untested dams brought	121.68
17,291	males and females of all ages brought	$ 210.82

On the basis of the above figures, cows with long-time records brought 165% more at public sale than untested cows from untested dams; cows with short-time records brought 42.5% more than untested cows from untested dams, and untested cows with tested dams brought 22.7% more than untested cows from untested dams.

Similarly, heifers from long-time record dams brought 164% more and heifers from short-time tested dams brought 53.1% more than heifers from untested dams.

Bulls from long-time record dams brought 249.4% more and bulls from short-time record dams brought 73.6% more than bulls from untested dams.

The following table gives the general average of public sale prices for Holsteins sold during each of the pa st 27 years.

* Annual Convention Report, June 5, 1929

Year	No. Head	Average
1906	591	$ 168.00
1907	891	161.00
1908	1,001	144.00
1909	1,946	170.00
1910	2,138	185.00
1911	3,346	205.00
1912	4,170	195.00
1913	4,737	248.80
1914	5,832	263.00
1915	6,441	247.00
1916	12,730	194.41
1917	12,728	246.43
1918	14,537	256.47
1919	18,279	361.00
1920	18,836	372.12
1921	12,961	274.21
1922	8,897	213.13
1923	9,422	175.41
1924	8,385	158.24
1925	8,383	145.10
1926	7,466	189.25
1927	5,184	219.88
1928	5,923	207.66
1929	5,086	237.10
1930	4,657	183.64
1931	3,689	144.81
1932	2,069	105.80

These figures show that the average price received for Holstein cattle sold at public auction were lower in 1932 than in any previous year since 1906. The peak prices at public sales were reached in 1920.

AMERICAN RECORD COWS FOR BUTTERFAT PRODUCTION

Date	Cow	Lbs. milk	lbs. fat
1895	Belle Sarcastic* 23039	21,075	632.3
1897	Belle Sarcastic* 23039 (Michigan State College, East Lansing)	23,189	721.6
1903	Princess Rhea Imp. (Guernsey)	14,009	775.0
1905	Yeska Sunbeam (Guernsey) (1st 1000 lb. butter producer)	14,920	857.0
1908	Colanthas 4th Johanna 48577 (Only cow to hold all butter records from one day to one year at one time. W.J. Gillette, Rosendale, Wisconsin)	27,432	998.2
1912	Pontiac Clothilde DeKol 2nd, 69991 (Stevens Bros. Co., Liverpool, N.Y.	25,318	1017.2
1912	Banostine Belle DeKol 90441 (Dan Dimmick, E. Claridon, Ohio)	27,404	1058.3
1912	May Rilma (Guernsey)	19,673	1073.0
1912	Murne Cowan (Guernsey)	24,008	1098.0
1914	Finderne Holingen Fayne 144551 (Jr. 3 yr. record) Somerset Holstein Company, Somerville, N.J.	24,612	1116.0
1915	Finderne Pride Johanna Rue 131083 Barnard Meyer, Finderne, N.J.	28,403	1176.4

* See page 99 - Vol. 55 Herd Book.

1915	Dutchess Skylark Ormsby 124514 J. B. Irvin, Minneapolis, Minnesota	27,761	1205.0
1921	Bella Pontiac 46321 C.H.B. Thomas, Barron, Ontario	27,191	1270.0
1923	May Walker Ollie Homestead 300043 Minnesota Holstein Company, Austin, Minn.	31,610	1218.6
1923	Agassiz Segis May Echo, 41302 C.H.B. Dominion Exp. Farm, Agassiz, B.C.	30,886	1345.0
1924	DeKol Plus Segis Dixie, 295135, C.H.B. D. Raymond Vaudreuil, Quebec (Strictly Official Test)	33,464	1349.3

HERD CLASSIFICATION AND SIRE RECOGNITION

Herd Inspection and Sire Recognition went into effect January 11, 1929. This plan of breed improvement has two chief objects in view; first, the elimination of inferior animals and their future offspring from the breed; second, recognition of the superior ability of certain sires to improve the breed in order that such sires may be kept in service and their full value to the breed may be conserved.

In the herd classification all animals in the herd are judged on breed type. Those classified as "Poor" are automatically eliminated from the breed calcellation of registration papers. Similarly, registration is denied to those bulls whose dams have been classified as "Fair".

During the first three years 137 herds and 3,380 animals have been classified of which 215 were listed as Excellent; 907, Very Good; 429, Good Plus: 1587, Good; 221, Fair and 21 Poor. To be classified as "Excellent" an animal must score above 85 per cent and if she scores below 60 per cent she is classed as "Poor".

Preferred sire certificates are awarded on the basis of the quality and type of the daughters and improvement shown over their dams in this respect, without reference to production.

A Bronze Medal Preferred Sire is one whose prepotency for the improvement of the breed is demonstrated through his daughters as compared with their dams. If the sire shows a striking prepotency for the improvement of the breed through his daughters he is classed as a Silver Medal Preferred Sire.

When the daughters of a Silver Medal Preferred Sire satisfy the production requirements, their sire is given the rating of a Gold Medal Proven Sire. In order for a sire to gain this distinction his daughters must exceed their Advanced Registry requirements for the age by 50%.

TRUE TYPE PROJECT

In order to insure greater uniformity in the judging of Holsteins the Association had True Type models, one quarter life size, prepared in 1923. Minatures, one-sixteenth size, together with paintings have pretty generally distributed in the United States. This no doubt has helped to unify the ideas of breeders and to aid in making the work of judging more uniform.

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NOTED HOLSTEIN-FRIESIAN COWS

Name	Lbs. Milk	Lbs. Butterfat
Agoo 1, First registered Holstein cow. Owned by Gerrit S. Miller, Peterboro, N.Y. whose herd established in 1869 is the oldest in continuous existence in America.		
Dowager 7, dam of Agoo, completed first yearly record made in America	12,681	
DeKol 2nd, 734. Generally regarded as the greatest foundation cow of the breed		
Tilly Alcartra 123459. Until her death she was the World's Champion long distance milk producer and first 30,000 pound producer in semi-official test. Her eight yearly records total Owned by A.W. Morris & Sons, Woodland, Cal. Slaughtered in foot and mouth outbreak in 1924	33,425 201,137	1,058. 6,052.
Pansje Prilly Abbekirk 706722. Average test 7.1% Average test in 305 day record 3.59% Bridgford Holstein Co., California	567 19,857	40 713
Keystone Beauty Plum Johanna 161646 World's Champion, Senior four year old Owned by George Stevenson, Clarks Summit, Pa.	25,787	1,035
May Echo Sylvia 223735 World's Champion milk producer for all periods from 7 to 100 days. She averaged 128.9 pounds of milk per day for 100 days. She was the dam of Carnation King Sylvia sold at public auction to Carnation Milk Farms for $106,000. Owned by A.C. Hardy, Brookville, Ontario	1,005.8	
Minerva Beets 85791. Grand Champion at the National Dairy Show in 1914, 1916, 1917 and 1919. Owned by R.E. Haeger, Algonquin, Illinois		
Segis Pietertje Prospect 221846. World's Champion milk record. December 18, 1920 (Age 6 years) At 9 years of age she produced Owned by Carnation Milk Farms, Seattle, Wash.	37,381 35,550	1,159 1,133
Helen Veeman Woodcrest 486877 Ranks second in milk production. Age 4½ years Owned by F.M. Helm, Fresno, California	36,217	1,003
Daisy Aaggie Ormsby 3rd 571569 U.S. Champion fat producer. Owned by Lakefield Farm, Clarkston, Michigan	33,140	1,286
Springbank Snow Countess 81817 CHB Lifetime champion over all breeds. Average of seven lactation periods	22,859	1,021

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Side Hill Ormsby Segis 786216 Twenty-four hours production Seven days production Owned by Firestón Farms, Ohio	149.2 1,005.0	
Therese, a German cow registered in the Lower Rhine Black and White Cattle Association Hoard's Dairyman - March 25, 1931	36,214	1,236.
Gertrud, a German cow Holstein-Friesian World, October 31,1931	30,436	1,351
Pietertje Maid Ormsby 78051. Known as "Mother Ormsby" because of the branch of the Ormsby family she founded. Dam of Sir Pietertje Ormsby Mercedes. Bred by M.H. Gardner, of Wisconsin.		
Belle Korndyke 13913. Foundation cow of the Korndyke family. Dam of Pontiac Korndyke one of the greatest transmitting sires of the breed.		
Spring Brook Bess Burke 9873. Known as "The Greatest Mother of the Breed". Dam of six daughters and two sons. The family is noted for size and conformation. Owned by E.C. Schroeder, Moorehead, Michigan	25,227	875.

HOLSTEIN-FRIESIAN FAMILIES

Dekol —
Pietertje —
Netherland —
Korndyke

Clothilde
Aaggie
Johanna
Ormsby
Walker

Colantha
Sarcastic Lad
Segis
Homestead
Onka

GRAND CHAMPION HOLSTEIN-FRIESIAN BULLS AT NATIONAL DAIRY SHOW*

1906	Jewel of Home Farm, 24340	W.B. Barney & Co., Hampton, Iowa
1907	Johanna Bonhuer Sir Fayne, 46595	David Miners, Spokane, Wash.
1908	Kaan Jewel of Woodlake, 28725	J.B. Irwin, Minneapolis, Minn.
1909	Dijkstra Beauty Lad 32122	W.B. Barney & Co., Hampton, Iowa
1910	Sir Beets Cornucopia Netherland, 38460	W.S. Moscrip, Lake Elmo, Minn.
1911	King Homestead DeKol, 39725	J. B. Irwin, Minneapolis, Minn.
1912		
1913	Paul Calamo Korndyke, 49342	R. E. Haeger, Algonquin, Ill.
1914		
1915	No Show	
1916		
1917	Oak DeKol Allie Homestead, 85929	Iowana Farm, Davenport, Iowa
1918	Johanna Bonheur Champion 2nd, 143120	J.M. Chestnut & Sons, Denison, Ka.
1919	Iowana Sir Allie, 11497	U.Dickinson & Son, Geneva, Wis.
1920	Cedar Lawn Canary Paul, 113333	Baird Bros., Waukesha, Wis.
1921	Tritomia Pietertje Ormsby 237603	R.R. Stewart & Henderson, Erickson, La.
1922	Lutzhland Aaggie Tidy Pietertje 2nd 146528	J.B. Irwin, Minneapolis, Minn.
1923	McKinley Pietertje Beets 154888	Frank Campbell, Wilson, N.Y.
1924		
1925	Johanna Rag Apple Pabst 346005	J.E. Pick, Hartford, Wis.
1926		
1927		
1928	Sir Fobes Ormsby Hengerveld 412147	Halbach, Baird & Garvens, Waukesha, Wis. Later owned by Elmwood Farm, Deerfield, Ill.
1929		
1920		
1931	Man O'war 30th 550894	Ed.Hofland, Menomonis, Wis.
1932	No Show	

* For photographs see "Holstein-Friesian History" Prescott & Price

GRAND CHAMPION HOLSTEIN-FRIESIAN COWS AT NATIONAL DAIRY SHOW*

1906	Daisy Texal 2nd 1637 C.H.B.	Geo. Rice, Tillsonburg,Ont.
1907	Parthenea Hengerveld, 46004	W.B.Barney & Co.,Hampton, Iowa
1908	Dulcina 2nd Clothilds,53520	Derrer Bros. Camp Chase,Ohio
1909	Parthenea Hengerveld 46004	W.B.Barney & Co., Hampton,Iowa
1910	Jewel Dutchess 64474	A.L. Williams,Fond duLac,Wis.
1911	Fay Jewel Beauty,59886	J. B. Irwin, Minneapolis,Minn.
1912	Bonnie Ormsby Lass,131966	Hazlewood Farm,Spokane,Wash.
1913	Crescent Beauty Butter Maid 129569	R.E. Haeger, Algonquin,Ill.
1914		
1915		
1917	Minerva Beets 85791	R.E. Haeger, Algonquin, Ill.
1918		
1919		
1920	Doetje Nellie Concordia 117114	Aitken Bros., Waukesha,Wis.
1921	Huldah Segis Korsba 277529	Aitken Bros., Waukesha, Wis.
1922	Aaggie Sylvia 62684 C.H.B.	McGhee Bros, Beechville, Ont.
1923	Tillamook Daisy Butter King DeKol 407854	Carnation Farms, Seattle,Wash.
1924	Madam Artis Wayne Denver, 679362	Jefferson Co. Asylum,Jefferson Wisconsin
1925	Belle Calamity Wayne 72514 C.H.B.	Haley & Lee, Springfield,Mass.
1926	Model Segis Prilly Gelsche 324629	Billiwhack Stock Farm,Oxnard,Ca
1927	Long Hollow Mercedes Butter Boy 845118	H.O. Larson, Deke, Iowa
1928	Carolyn Netherland Lady 431463	J.D. McDonald, West Salem,Wis.
1929	Johanna Pietertje Artis Creamelle 923825	Jefferson Co. Asylum, Jefferson Wisconsin
1930	Miss Lassie Ormsby 903511	E. E. Griffith, Big Cabin,Okla.
1931	Ellenvale Bonheur Ormsby Posch 3rd 1128658	Elmwood Farm, Deerfield, Ill.
1932	No Show	

* For photographs 1906 to 1929 see "Holstein-Friesian History" - Prescott and Price.

CHAPTER VI

Jersey Cattle

Jersey, the largest of the Channel Islands, is located in the English Channel sixteen miles west of Normandy, France and one hundred twenty-five miles south of Southampton, England. It measures eleven miles from east to west with an average width of five and one half miles. Its area is about forty-five square miles, including 28,717 acres of arable land and 5000 acres of pasture. The island slopes to the south and has a mild even climate with a mean average temperature of 51 degrees. The rain fall is thirty and one-half inches and fogs are very frequent. Because of the mild climate the cows are usually kept out doors all the time from May to October and are outside during the daytime in winter. The cattle are tethered as they are on the Island of Guernsey.

The land is intensively farmed and two crops are raised each year from the same fields, potatoes being followed by roots or tomatoes. The population is about fifty thousand. The farms are all small ranging in size from three to fifty acres. Until two hundred years ago feudal lords controlled nearly all the land. When a land owner dies his estate is divided among his heirs, the principal heir, usually the oldest son taking yhe dwelling, two acres of land adjoining the one tenth of all other land.

The potato, an American plant, was introduced to the island of Jersey by Sir Walter Raleigh when he was governor of the Island. Potatoes and tomatoes are the principal crops with cattle raising as an important side line.

DEVELOPMENT OF CATTLE ON ISLAND OF JERSEY

Early in the eighteenth century the Jersey was recognized as a distinct breed with certain characteristics peculiar to it. In 1763 the Island breeders adopted laws prohibiting the importation of foreign cattle except for immediate slaughter and these laws were strengthened & revised in 1789(1). After cattle once leave the Island they cannot be brought back again.

The Royal Jersey Agricultural and Horticultural Society, founded in 1833, has played an important part in the development of the breed. In 1834 they began systematically to improve the breed by developing a score card. In 1866 they started the Herd Book, adopting rules which made it radically different from all other breed societies by requiring both registration and qualification for entry in the Jersey Herd Book.

There are two divisions in the Island Herd Book one for foundation stock (.F.S.) and the other for pedigree stock (P.S.). Any cow which has not been registered but which has won a prize or a certificate of merit at a departmental or parish show is eligible at any age as a foundation animal. Her calves sired subsequent to this qualification are known as pedigree stock. The larger number of entries are now pedigree stock.

Calves must be registered within eight days after birth. Upon calving for the first time, a registered heifer must be submitted for approval to a group of five judges, who after careful examination either qualify or reject the animal. If qualified she may be commended (C) or Highly Commended (H.C.) on conformation. The heifer when qualified is entered in the Herd Book proper and a certificate is issued.

Bulls are submitted for qualification at not less than one year of age, their dams, if alive and on the Island, being inspected at the same time. The son of an inferior cow can never be qualified with the letters "H.C.".

(1) "The Jersey Breed" R.M. Gow

"Milk Records" a system somewhat similar to the Register of Merit was established on the Island in December 1912.

About 1821 Philips Dauncy , began the development of a Jersey herd in England. He improved his cattle greatly through systematic breeding and can be considered the first great constructive breeder of Jerseys. (1)

ORIGIN OF JERSEYS

Jerseys are supposed to be descended from the cattle of Normandy and Brittany in France. According to Kellar they belong to the Bos Sandaicus group and are, therefore, related in origin to the Brown Swiss and Guernseys.

DISTRIBUTION OF JERSEYS

The first export demand for Jerseys came from England as early as 1771, where largely because of their attractive appearance, they were placed on the estates of the nobility. Later they were sent to the United States and are now found in large numbers in Canada, New Zealand and Australia.

IMPORTATION OF JERSEYS

Jerseys first reached the United States early in the nineteenth century. Richard Morris of Philadelphia wrote on January 11, 1817 about the ability of a Jersey cow he owned to produce a large amount of butter economically. Henry Clay is reported to have made an importation into Kentucky about 1840 but definite records were not kept until about 1850 when Jerseys were taken into Connecticut and later in 1868 an importation was made by S. S. Stephens into Montreal. Among the foundation animals in the Stephens's importations was Stoke Pogis 3rd, the progenitor of many famous Jerseys.

From 1868 the importations were quite numerous until about 1890 and then few were brought over for several years.

Jersey cattle have spread into every state in the Union. In 1928 and 1929 twenty-four states each registered from one thousand to ten thousand Jerseys in each year. The number of registration for the United States reached its peak, so far, in the fiscal year from April 1, 1929 to March 31, 1930 when 75,690 Jerseys were recorded in the herd book.

The following table shows the number of Jerseys imported into America during the past twenty-seven years which were registered in the American Jersey Cattle Club herd books.

Jersey Cattle Imported into the United States (2)

	Bulls	Cows	Total
Number imported and registered before establishment of the club from 1850 to 1867	61	244	305
Number registered from 1868 to March 31,1930	3,831	19,104	22,939
	3,892	19,352	23,244

These are the foundation stock of the nearly one million and a quarter registered Jerseys bred in the United States, with the exceptio of a comparatively very few others, the progeny of animals imported prior to 1850 and of some Jersey cattle brought from the Island to Canada.

(1) Sanders, A.H. The Taurine World, The National Geographic Magazine, December, 1925.

(2) Jersey Bulletin, June 14, 1933

Among the importers of Jerseys, T.S. Cooper of Coopersburg, Pennsylvania, was probably the best known. In forty-four years he brou 3,824 head to the United States from the Island. W. R. Spann and Sons, Morristown, N.J. have imported a large number of animals as also have B.H. Bull and Son, Brampton, Ontario; Wallace MacMonnies, Madison, New Jersey, and Meridale Farms, Meredith, N.Y.

COST OF IMPORTANT PUREBRED JERSEYS

In a letter to the writer, R. M. Gow, treasurer of the American Jersey Cattle Club, made the following statement about the cost of importing animals.

"In regard to the cost of importing a calf from the Island, I would say that some of the expenses are the same for one animal as for a hundred. In the first place, there is the price you have to pay for the animal on the Island. After you have made a purchase of an animal, this animal has to be tuberculin tested; you must obtain a shipper's certificate and also a certificate which the agent of the Club on the Island has to fill out and sign, and which gives the authority for registering the animal on its arrival in this country. There would, of course, by other incidental expenses on the Island, and possibly five pounds, or twenty-five dollars, would cover all this expense. Then the question of shipping the animal acorss the Channel would come up, as trans-Atlantic steamers do not load cattle at an Island port. The cost of sending one animal or one hundred animals across the Channel would be three hundred pounds. You, of course, can ship one hundred head across for this, but the cost would be the same if you shipped only one. That is why animals are imported in large numbers at a time. After this would follow the ocean freight from Southampton or London to New York, and this amounts to thirteen pounds per head. After arrival you would have to have the animal or animals removed from the dock in New York to the Quarantine Station at Athenia, New Jersey. This is a thirty mile trip, and of course the number shipped would make quite a difference as to the cost per head. Then the animal or animals would have to be maintained at Quarantine at the owner's expense for thirty days. Then you would have insurance on the animal and also the handling of the animals on board ship. I cannot say just what this would cost. I understand that no feed is permitted by the American Government to be taken from England on account of danger of foot-and-mouth disease, so that importers of cattle have to send their feed first from this country and have it put aboard the vessel bringing the animal without having it sent ashore anywhere, in order to avoid all possibili of infection." (1)

ORGANIZATION OF CLUB

The American Jersey Cattle Club was organized in July 1868 and chartered under the laws of New York in 1880. The membership starting with forty-three charter members has now increased to over one thousand. The membership fee was first fixed at $50.00 but later increased to $100.00 and numerous attempts have been made to have this fee reduced. At the annual meeting in June 1933 it was voted to reduce the membership fee to $50.00. The address of The American Jersey Cattle Club is 324 West 23rd Street, New York City and the Secretary is Louis W. Morley.

CHARACTERISTICS

The Jersey is the smallest of the dairy breeds ranging in weight from 900 pounds to 1100 pounds for mature cows and 1300 to 1600 pounds for mature bulls.

(1) See "Handling Jerseys During Importation" The Jersey Bulletin, Feb. 19, 1932.

In color they are some shade of fawn with or without white markings Hooper found that sixty-six per cent of Jersey cattle are solid in color with black tongues and black switches, while twelve per cent are broken in color with white tongues and white switches.(1) The remaining twenty-two per cent have various combinations of color of the three units tongue, body and switch. He found a high correlation between solid colored body, black tongue and black switch and also a high ratio betwe a broken colored body, white tongue and white switch.

The shades of fawn range from lemon yellow to a dark mahogany or nearly black. The white markings usually appear on the legs and belly but may be found elsewhere on the body. The tongue and switch are usually black although a mixed or white switch and a light colored tongue do not bar animals from registry.

Because of the similarity of the color markings of Jerseys the American Jersey Cattle Club now requires that all animals offered for registration must be tattooed. This rule went into effect January 1, 1929.

The Jersey's forehead is the most dished of any breed and is broade between the eyes in proportion to the length of face than is the forehead of other dairy breeds. The horns are small and incurving and usually tipped with black.

Cows of this breed are very gentle when carefully handled, but because of having a highly developed nervous temperament, they may become very excitable when carelessly handled. Jerseys mature more rapidly than other dairy breeds and the heifers are usually bred to freshen at from twenty-three to twenty-five months.

The mammary development of this breed is very good although some cows are criticized for having rather short teats. This is recognized on the score card by allotting eight points for teats of good and uniform length and size, regularly and squarely placed. For the same thing the Holstein score card gives four points and the Guernsey but three. In judging Jerseys, more emphasis is given to the development of the foreudder and foreattachment than to the rear quarters because the score card allows ten points for the foreudder and but six points for the rear quarters.

Jerseys are noted for their quality, neatness and refinement and lack of fleshiness. As a breed they are slender of neck, rather sharp over the withers, with level rumps although often times narrow at the pins. A good Jersey cow approaches very closely the model of what is generally taught to be the desired dairy form.

Although not officially recognized there are two rather distinct types in the Jersey breed known as the Island and American types.(2) Roughly the main difference is in size and refinement, the Island Jerse are smaller boned, neater and more refined in appearance and as a group have more summetrical udders. Naturally all Jerseys originated on the Island, but because of different climatic and feed conditions in this country and different ideals of the American breeder animals two or three generations removed from Island ancestors may differ materially from them in appearance. The system of feeding and handling as practic by the average american Jersey breeder is conductive to developing a larger animal and also to a higher producing animal. However, there may be more differences among the Jersey families than there are in the two general types as the skillful American Breeder is able to produce animals with all the symmetry of the Island stock and yet show more capacity for feed and milk production.(3)

(1) Kentucky Agri. Exp. Sta. Bul. 234.
(2) MacMonnies, W. An Ounce of Gold or a Pound of Mud. Jersey Bulletin October 19, 1932, p. 1515
(3) Kenan, W.R. New Scientific Discoveries and Their Practical Application to the Dairy Industry at Rawleigh Farm. Jersey Bulletin December 28, 1932.

Probably better than any other breed, the Jerseys divide themselves into distinct groups or families. In many cases it is now somewhat difficult to differentiate between these groups. Most of them have originated from single animals and the following list includes some of the more important foundation Jerseys:

Blonde's Golden Oxford, 200863
Combination's Premier, 150715
The Cid, 199361
Daisylike Majesty, 198188
Eminent, 61631
Fauvic's Prince, 37788
Gamboge's Knight 96598
Oxford You'll Do X11866
St. Lawes, 72053
Sophie's Tormentor, 20883
Golden Fern's Lad, 65800
Golden Glow's Chief, 61460
The Imported Jap, 75265
Jersey Volunteerm 17212
Masterman of Oaklands, 198269
Royal Majesty, 79313
Interested Prince, 88224
Spermfield Owl, 57088
Eminent Raleigh, 69011
Stoke Pogis 3rd, 2238
Sybil's Gamboge, 174663
Golden Lad, 1242

DAIRY CHARACTERISTICS

In milk production Jerseys rank fourth among the major dairy breeds though in the production of butterfat and first in the percentage of butterfat and total solids.

The most pronounced characteristics of Jersey milk are the large butterfat globules, the high butterfat content, yellow color and high total solids content.

ADAPTABILITY OF THE BREED.

Jerseys were first selected for family cows both because of the richness of their milk and also because the large fat globules resulted in the rapid creaming and little loss of fat in hand skimming. It was also believed that the cream churned most rapidly because of the large sized butterfat globules.

After the development of the hand separator and the rapid growth of urban population the demand for Jerseys decreased or rather the demand for cows producing larger amounts of lower testing milk increased.

Jerseys seem best adapted for the production of market milk of a special quality and for use in mixed herds where a higher testing milk is desired. On account of its richness Jersey milk cannot be profitably sold in competition with milk from lower testing breeds when payment is made on the basis of weight.

In the economical production of butterfat, Jerseys are unsurpassed because the fat represents a greater proportion of the total solids than in other breeds. Also a smaller proportion of the daily ration is used for body maintenance.

Effect of Breed on Percentage of Fat and Total Solids(1)

Breed	% fat	% S.N.F.	% T.S.
Holstein	3.45	8.55	12.00
Ayrshire	3.85	8.87	12.72
Guernsey	4.98	9.51	14.49
Jersey	5.14	9.56	14.70

The table shows that as the percentage of fat increases the percentage of solids not fat also increases, although at a slower rate.

(1) Bureau of Animal Industry, Bul. 156

As meat producers the Jersey breed probably stands lowest largely because the body fat is so yellow and unevenly distributed. Because Jersey calves are small at birth and gain slowly in weight they are not well adapted for veal production.

REGISTER OF MERIT

The first tests on Jerseys were churn tests with the results recorded in pounds and ounces of butter. The first recorded long time test was that for the cow Flora 113, which in fifty weeks produced the equivalent of 511 pounds 2 ounces of butter. The test was completed April 30, 1854.(1)

Bomba 10330, on October 12, 1892, completed the first recorded seven day butter record tested under the supervision of the committee appointed by the President of the Club. Her record was 21 pounds 14 ounces of butter.

The seven day records were first accepted on the affidavits of the managers of the tests or the certificates of the owners of the cows tested. These were called Authenticated Tests. Confirmed Tests were those made in accordance with the rules of the Club or by the officials of any state experiment station, in confirmation of the amount of butter produced by churning. It was not until May 6, 1903 when the Register of Merit was established that the Babcock test was finally accepted as the official method of determining the butterfat content of milk.

TREND OF REGISTER OF MERIT TESTING

At End of Fiscal Year	Cows on Test	At End of Fiscal Year	Cows on Test
1913-1914	1157	1923-1924	2900
1914-1915	2491	1924-1925	2450
1915-1916	2862	1925-1926	2249
1916-1917	3565	1926-1927	2380
1917-1918	2829	1927-1928	3211
1918-1919	2827	1928-1929	3430
1919-1920	5313	1929-1930	2511
1920-1921	5650	1930-1931	2772
1921-1922	5400	1931-1932	2188
1922-1923	3500	1932-1933	1535

In 1922 one year after the 305 day test was started 22.5% of the total number of tests conducted were in this division. In 1925, 40.8% of all the tests were in the ten month class and in 1929 the number increased to 60% thus showing the increase in popularity of the 305 day test period.

To April 1, 1933, 50,117 Register of Merit records had been completed by 38,163 cows. These records made by cows of all ages and in both the 305 and 365 day divisions, averaged 456.3 pounds of butterfat. Of this group 27,981 records were for 365 days and these show an average production of 484.0 pounds of butterfat, 9,026 pounds of milk testing 5.36 per cent. The 305 day records show an average production of 423.0 pounds of butterfat, 7,931 pounds of milk with a test of 5.33 per cent.(2)

Up to March 31, 1932 a total of 36,391 cows had been tested in the Register of Merit, but this was only 3.7 per cent of the total 952,933 females registered by the Jersey Cattle Club during the same period.

(1) Vol. 1 Butter Tests 1891
(2) Jersey Bulletin, June 14, 1933

JERSEY REGISTER OF MERIT REQUIREMENTS (1)

Age	Class A		Class AA	Class AAA
	365 days	305 days	365 days	305 days
Mature Sr. 4 Jr. 4 Sr. 3 Jr. 3 Sr. 2 Jr. 2	400 lbs. 290.5lbs.	360 lbs. 250.5 lbs.	400 lbs. 290.5 lbs.	360 lbs. 250.5 lbs.

Increase per day up to maturity .1 lb. of fat

In class AA and Class AAA a normal living calf must be dropped whic has been carried at least 155 days during the official test period.

The Jersey Association does not use letters to designate age excepi for National Class Championships. In these sub-classes, A designates a Junior two year old and G an aged cow.

Cows may be tested under the Register of Merit rules with with one or two day supervisions each month. In both cases a preliminary milking is required.

In case the bi-monthly supervision is used a two-day test is conducted every two months and the test must be preceded by a preliminary milking.

Bulls formerly entered the Register of Merit with three Register of Merit daughters from different dams but this classification was discontinued in 1932 and a new classification for American Jersey Cattle Club Tested Sires was established.

In December of 1932 the first booklet of American Jersey Cattle Club Tested Sires was published. This booklet contains the names of every Jersey bull living or dead having ten or more daughters tested either in the Register of Merit or in the Herd Improvement Registry. A total of 807 sires were included in the booklet.

A Tested Sire will become a Superior Sire when:

a. The total number of tested daughters equals or exceeds 50 per cent of the number of registered daughters four years old or over.

b. The average butterfat production of all tested daughters equals or exceeds 600 pounds of butterfat when figured to a mature basis.

c. When he shall have ten classified daughters and 90 per cent of all the daughters classified shall be classified as "Good" or better.

In the 1932 Register of Merit Supplement are listed the names and records of all cows tested for longer than ninety days but failing to meet the production Register of Merit requirements.

HERD IMPROVEMENT REGISTRY

The Herd Improvement Registry, a division of the Register of Merit was established in 1929. Only registered Jersey cows are eligible for this method of testing and all such cows in the herd must be included.

The record of any cow may be omitted providing her registration paper is surrendered to the American Jersey Cattle Club before the close of the eleventh month of the testing year.

HERD CLASSIFICATION

The Herd Classification was adopted in 1932 and this plan supplements both the Register of Merit and the Herd Improvement Registry animals are scored on type and rated into six classifications, excellent

(1) Register of Merit Rules, December 1932

very good, good plus, good, fair and poor. Only cows that have come int production or bulls 15 months of age or older are classified.

AGE CONVERSION FACTORS

The age conversion factors as adopted by the American Jersey Cattle Club are as follows:

Under 2 years	1.45	4½ to 5 years	1.04
2 to 2½ years	1.36	5 to 6 years	1.02
2½ to 3 years	1.28	6 to 10 years	1.00
3 to 3½ years	1.20	10 to 12 years	1.02
3½ to 4 years	1.14	12 years and over	1.05
4 to 4½ years	1.08		

To convert a 305-day record to a 365-day record basis the 305-day record is multiplied by 1.15. If it was desired to convert a 365-day record to a 305-day basis the 365-day record would be multiplied by the factor .87.

AMERICAN JERSEY CATTLE CLUB ANNUAL AWARDS

Silver Medals Awarded to Cows Under Five Years which Produce:
Class AA - 500 pounds fat
Class AAA - 410 pounds fat
In each class .2 of a pound of butterfat additional for each day older than two years and ninety-five days.
Gold Medals Awarded to Cows of Any Age Which Produce:
Class AA - At least 700 pounds butterfat
Class AAA - At least 610 pounds butterfat
Medal of Merit Awarded to Cows of Any Age which Produce:
Class AA - At least 850 pounds butterfat
Class AAA - At least 740 pounds butterfat
The President's Cup Awarded to Highest Producing Cow in Either:
Class AA - At least 1000 pounds butterfat
Class AAA - At least 870 pounds butterfat
Gold or Silver Medal Bulls are bulls which have sired three or more R. of M. daughters in Class AA or Class AAA and to which have been awarded gold or silver medals.

NOTED JERSEYS

Sophie 19th of Hood Farm 189748 holds the Jersey long distance production record having produced in eleven lactation periods 138,206 pounds of milk and 7544.51 pounds of butterfat. This is an average of 12,018 pounds of milk and 685,8 pounds of butterfat. When she died in 1924, her skeleton was mounted for the United States Bureau of Dairying by an expert from the Smithsonian Institute.(1)

Vive La France, 319616, owned by Pickard Brothers, Marian, Oregon, produced more butterfat during her first six lactation periods than any other cow. No cow of any breed has held three world's records at any one time or broken two world's records in two years successively.

PRODUCTION RECORDS OF VIVE LA FRANCE

Year	Lbs. Milk	Lbs. Fat	Days	Age
1916	9210	633.29	365	2-0
1917	12745	892.63	365	3-2
1919	14926	1031.64	365	4-7
1920	15272	1039.29	365	5-11
1921	11867	818.01	363	6-11
1923	14441	917.07	365	8-4
Total	78,461	5,331.93		
Average	13,077	888.65		

(1) The Jersey Bulletin, November 23, 1932, p. 1712

Namrow, 226687, owned by A.N. Jordon, Ohio, is the world's champion, all breeds, in the production of butterfat for cows, fourteen years old or over. Her record is 16,008 pounds of milk and 774.9 pounds of butterfat made at the age of sixteen years.

Financial King's Interest, 235065, reaching the age of 24 years 7 months has given birth to twenty-one calves all of which but one were females. She has but two official records. At the age of eighteen years she produced 401.9 pounds of butterfat and her next freshening one year later, 400.82 pounds. She was owned by Greystone Jersey Farm, West Chester, Pennsylvania.

1000 POUND JERSEY COWS

NAME	Age	Lbs. Milk	Lbs. Fat
Wagga Gladys Hawkesbury Agri. College, New Zealand		22,847	1259.6
Woodland's Felicie New Zealand		17,332	1220.8
Abigail of Hillside, 457241 J.T. Carpenter & Son, Shelburne Falls, Mass.	8-6	23,677(1)	1197.51(2)
Darling's Jolly Lassie, 435948 Pickard Brothers, Marion, Ohio	4-0	16,425	1141.28
Groff's Constance, 367292 W.G. Groff, Amherst, Mass.	5-8	17,942	1130.09
Prince's Emma of H.S.F., 35939 Est. of S.B. Hartman, Lockbourne, Ohio	6-8	18,437	1109.99
California's Rinda Insie, 565559 University of California, Davis, Cal.	6-7	17,469	1072.4
Imp. Cancalaise, 696129 Carl Tucker, N.Y.	7-8	18,822	1072.3
Lad's Iota, 350672 S.J. McKee, Independence, Oregon	5-6	18,632	1048.07
Fauvic Ruth, 385463 A.V. Barnes, New Canaan, Conn.	7-5	19,805	1047.28
Imperial Isabel, 447661 H.H. Cook, California	9-4	16,702	1045.1
Madeline of Hillside, 389336 J.T. Carpenter, Shelburne Falls, Mass	8-3	20,624	1044.8
Rinda's Rosaire's Tessie, 725083 J. Kopplin, Oregon	3-11	15,592	1042.8
Plain Mary, 268206 Ayrdale Stock Farms, Bangor, Maine	8-11	15,256	1040.08
Vive La France, 319616 Pickard Bros., Oregon	5-11	15,272	1039.29

(1) Jersey American Record for milk production
(2) Jersey American Record for butterfat

Lady's Silken Glow, 313311 Pickard Bros, Oregon	7-1	14,939	1038.70
St. Mawes Lad's Lady, 451568 H. D. Huff, Independence, Oregon	4-2	15,229	1032.97
Vive La France, 319616 Pickard Bros., Oregon	4-7	14,926	1031.64
R. R. Ace's Carrie, 650480 River Road Far, Mass.	8-4	18,507	1030.9
Ida's Clifton's Ethel, 722745 W. D. Howard, Mass.	3-11	18,151	1030.7
Red Lady, 393118 R.L. Shuford, N.C.	9-9	19,608	1028.5
Imp. Zenia's Oxford Lilac, 874105 H.D. Huff, Oregon	7-0	17,666	1022.5
Princess Zenia, 356699 A.V. Barnes, New Canaan, Conn. (breeder)	8-7	18,305	1021.39
Brown Lady's Little Jewel, 378786 Sherman Nursery Co., Charles City, Iowa	5-8	18,318	1019.73
Elista's Golden Fern 3rd, 533277 Roy L. Boolby, N.Y.	5-2	18,908	1009.3
Abigail of Hillside, 457241 J.T. Carpenter, Shelburne Falls, Mass.	5-1	20,359	1007.93
Fauvic's Star, 313018 A.V. Barnes, New Canaan, Conn.	6-11	20,616	1005.90
Princess Elsie, 418113 P.T. Spinning, Springfield, Ohio. (Breeder)	6-4	17,064	1003.74
Raleigh's Torono's Meme, 544207 Sherman Nursery Co., Iowa	4-1	19,076	1003.5
St. Mawes Lad's Pride, 515044 Harry Hipp, Independence, Oregon	3-7	14,243	1002.33
Tiddlewink's Quality Girl, 560784 Mrs. Feneal, Oregon	6-4	17,278	1000.62
Sophie's Agnes, 296759 Ayrdale Stock Farm, Bangor, Maine	6-1	16,212	1000.07

Poet's Mabel Howat, 479804, owned by Karl Hanneman, Corbett, Oregon, is the only Jersey to win five medals of Merit. Three of the medals were won on successive lactations.

Her last record of 883.9 pounds of butterfat completed at the age of 8 years 11 months breaks the world's 205-day record for Jerseys of all ages.

YEARLY JERSEY AUCTION SALE AVERAGE*

Year	Number Sold	Average Price	Year	Number Sold	Average Price
1915		$108.00	1924	3235	$206.29
1916		128.00	1925	3575	163.78
1917		141.00	1926	2291	179.92
1918		191.00	1927	3304	191.86
1920	5533	353.95	1928	3028	211.22
1921	2050	295.42	1929	4250	209.08
1922	3261	234.19	1930	1985	212.13
1923	3706	276.03	1931	705	278.24
			1932	564	125.76

* Jersey Bulletins, December 20, 1931 - December 28, 1932

These figures show that Jerseys, during the period from 1915 to 1933, reached their peack prices in 1920 and their lowest prices in 1915 although the average sale price for 1932 was not much higher than in 1915.

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GRAND CHAMPION JERSEY COWS AT NATIONAL DAIRY SHOW

1906	Rachel Benton,	Hunter & Smith, Lincoln, Nebr
1907	Golden Fern's Sensation,173201	Louisianna Farm, Fredericksburg, Virginia
1908	Jolly Lad of Beechwood, 213915	C. G. Council, Vandalia, Ill.
1909	Majesty's Oxford Lass, 213940	C. G. Council, Vandalia, Ill.
1910	Bowman's Anna, 231557	C. I. Hudson, E. Norwich, L.I
1911	Great Scott's Champion, 203703	Ed.C. Lasater, Falfurrias,Tex
1912	Gamboge's Tiddlewinks, 252156	White Horse Farms, Paoli,Pa.
1913	Ula of Fair Acres, 292734	John B. Stump, Monmouth,Orego
1914	Noble's Jolly Norah, 293938	Elmendorf Farm, Lexington,Ky.
1915	No Show	
1916	Gloria Benedictine, 246997	A. V. Barnes, New Canaan,Conn
1917	Oxford Jamesty's Gipsy, 344076	L.V. Walkley,Southington,Conn
1918	Oxford Jamesty's Gipsy, 344076	L.V. Walkley,Southington,Conn
1919	Constance of Falfurrias,332639	Ed.C. Lasater, Falfurrias,Tex
1920	Fairy Lad's Sly Puss, 487765	Longview Farm, Lee'sSummit,Mo.
1921	Brampton Seaside Lass, 4671,C.F.B.	John Pringle, London, Ont.
1922	Jasmine's Pretty Fanny, 505678	Twin Oaks Farm, Morristown,N
1923	Sociable Sybil, 478362	Inderkill Farm,Stattsburg,N.Y
1924	Fern's Oxford Diana,578991	Twin Oaks Farm,Morristown,N.J
1925	Raleigh's Oxford Thistle,407305	Longview Farm,Lee's Summit,Mo
1926	Blonde's Cunning Mouse	J.S. Ellsworth,Lewisburg,Conn
1927	Crieve Hall Blonde's Segunda	Herbert Marshall,Nashville,Te
1928	Imp. Mytilda's Belle, 899929	Taft Tanch,Taft,Texas
1929	Design's Oxford Pride, 747307	Twin Oaks Farm,Morristown,N.J
1930	Blonde's Cunning Mouse	Folly Farms, Simsbury,Conn.
1931	Lavender Lady	Hugh Bonnell,Youngstown,Ohio
1932	No Show	

GRAND CHAMPION JERSEY BULLS AT NATIONAL DAIRY SHOWS

1906	Emanon, 52299	Hunter & Smith, Lincoln, Nebr.
1907	Brookhill Fox, 65303	Jesse M. Overton, Nashville, Tenn.
1908	Royal Majest, 79313	C. G. Council, Vandalia, Ill.
1909	Derry's Jolly Lad, 80538	J. F. Boyd, Rushville, Ind.
1910	Raleigh's Fairy Boy, 83767	C. I. Hudson, East Norwich, L.I.
1911	Sultana's Golden Jolly, 86180	T. S. Cooper, Coopersburg, Pa.
1912	Fontaine's Chietain, 97158	Undalata Farm, Shelbyville, Ky.
1913	Noble's Eminent Lad, 113642	Ed. C. Lasater, Falfurrias, Texas
1914	Allen Dales Raleigh, 109356	Allen Dale Farm, Shelbyville, Ky.
1915	No Show	
1916	Imp. Golden Fern's Noble 145762	Wm. Ross Proctor, Baryville, N.Y.
1917	Gamboge's Vellum's Majesty 123033	M. D. Munn, Forest Lake, Minn.
1918	Raleigh's Oxford Prince, 123167	Ed. C. Lasater, Falfurrias, Tex.
1919	Lida's Raleigh, 137009	Wm. Ross Proctor, Baryville, N.Y.
1920	Fashionable Fern Lad, 163968	Longview Farm, Lee's Summit, Mo.
1921	Fashionable Fern Lad, 163968	Longview Farm, Lee's Summit, Mo.
1922	Fern's Wexford Noble, 172066	Twin Oaks Farm, Morristown, N.J.
1923	Fern's Wexford Noble, 172066	Twin Oaks Farm, Morristown, N.J.
1924	Fern's Wexford Noble, 172066	Twin Oaks Farm, Morristown, N.J.
1925	Fern's Rochette Noble, 193011	Twin Oaks Farm, Morristown, N.J.
1926	Oxford Wexford Noble	Twin Oaks Farm, Morristown, N.J.
1927	Fern's Rochette Noble, 193011	Twin Oaks Farm, Morristown, N.J.
1928	Fern's Rochette Noble, 193011	Twin Oaks Farm, Morristown, N.J.
1929	Fern's Signal of Oakland.	Twin Oaks Farm, Morristown, N.J.
1930	February Fern's Noble 254800	Twin Oaks Farm, Morristown, N.J.
1931	Oxford Lassy's Design	Crieve Hall Farm, Nashville, Tenn.
1932	No Show	

CHAPTER VII

GUERNSEY CATTLE

THE CHANNEL ISLAND GROUP

The Islands of Jersey, Guernsey, Alderney, Sark, Herm, and Jethou, and several others that are little more than rocks, form the Channel Island group. Guernsey is 69 miles southeast of the nearest point on the English coast and about 28 miles from France. Jersey lies within 16 miles of the French coast and 22 miles south east of Guernsey. Alderney is 22 miles northeast of Guernsey while Sark and Herm lie between Guernsey and the cost of France.

The small islands of Alderney and Sark are included with Guernsey because the Guernsey cow is common to all of them. Alderney once gave its name to all Channel Island cattle. In the old sailing ship days, dealers from England with commissions to purchase cattle on the Islands, would arrange their shipments so that the vessel would call first at Jersey, that being the farthest port, next at Guernsey and finally at Alderney. The complete shipment would then be entered in the Customs at Alderney and thereafter appear in statistical records as "Alderney Cattle". This explains why early importations to the United States from both the Islands of Jersey and Guernsey were first called Alderneys.

ISLAND OF GUERNSEY

Guernsey is nine miles in length and five miles in width, and exclusive of water, contains 15,750 acres of approximately 24 square miles. Ragged granite bluffs characterize most of its coast line and the surrounding sea is very dangerous to navigate because the tides run from ten to twelve miles an hour and reach a height of forty to fifty feet.

The Island has about 40,000 inhabitants who speak both English and French. Most remarkable is the fact that Guernsey has never been conquered by any European country since the first settlements were made by the Normans.

The climate is not quite as mild as that of Jersey since Guernsey slopes to the north which gives no protection from the winds coming from the North Sea. No extremes of temperature occur and the thermometer seldom registers above 70 degrees Fahrenheit or below 40 degrees.

The agriculture of Guernsey is its outstanding characteristic. Nearly one-third of the total acreage is under crops which includes fruit flowers and vegetables for the Paris and London markets. About one-fifth of the cultivated land is used for hay and an equal amount is kept in permanent pasture.

The greater portion of the truck crops are raised under glass without artificial heat. The largest single crop is tomatoes of which 4,000,000 twelve pound crates are exported annually. While a considerable amount of commercial fertilizer is used, dependency is largely placed upon the manure from the cattle and horses.

The number of cattle on the Island in 1927 as estimated by Bower of the English Department of Agriculture was as follows: *

	Average Number
Cows and heifers in milk	2700
Cows in calf and dry	200
Heifers in calf	450
Bulls being used for service	90

* Guernsey Breeders' Journal, June 15, 1928

3440

Other cattle two years old and over	400
Other cattle one year and over	1100
other cattle under one year	1200
Total number	6140

In 1925 the Island breeders exported 464 animals to England and 228 to the United States of 11 per cent of its total number. This is said to be the maximum number the Island can spare each year with out depleting its herds. The demand from England arises from the necessity of the dairymen there to keep the quality of their milk up to the government standard. The American demand is for the best up to the government standpoint of both conformation and production.

THE ORIGIN OF THE GUERNSEY

The exact origin of Guernsey cattle is unknown. The best evidence is taken from records of Norman monks who state that the origin of this breed is from two sources.

About 960 A.D. the Duke of Normandy sent monks to establish an abbey on Guernsey and some years later another Duke gave them more land with the provision that they would till the soil, teach the natives the art of agriculture and defend them against sea pirates. Naturally cattle were necessary and these were imported from Brittany. They were called the "Froment de Leon" a breed not yet extinct. This breed was small in size and red and white or fawn and white in color.

About 1061 A.D. other monks from Cherbourg, France, established an abbey in Alderney and one in Guernsey. Records show they brought large brindle Norman cattle with them. Cows of this breed were noted for being heavy producers of a rich yellow milk. They had black muzzles which have largely been eliminated among present day Guernseys since foreign cattle are no longer admitted to the Island.

DEVELOPMENT OF CATTLE ON ISLAND OF GUERNSEY

Evidently these two breeds or strains were bred together producing the ancestors of our modern Guernsey, but just why the production of yellow milk was emphasized is not known. However, as early as 1823 the most important item among the six different points in the standard used by judges for placing cattle was one concerning yellow ears and tail. The score card developed in 1842 by the Royal Agricultural Society of Guernsey allowed four points for hellow butter and eight points for the head which included "small ears, orange colored inside". This score card totaled 28 points. By 1882, the total score had been increased to 100 points of which 5 points were given for "small ears, deep orange colored within" and 8 points for "skin deep yellow or end of tail, on udder, teats and body gnerally". The values given these indications of secretion were later decreased slightly and then 15 points were allowed for "skin deep yellow in ear, end of bone of tail, on udder, teats and body generally". This is just five points less tha the amount now given for secretions on the American score card.

The great advancement in the development of the breed has been made during the last 100 years. On February 17, 1824, a law was passed prohibiting the importation to the Island of any stock except for immediate slaughter. This was done not only to protect the purity of blood of the Island cattle but also to prohibit the importation of French cows which later would be exported from the Island as Guernseys.

The early method of selection by which were kept the progeny of the cows which were considered to be the best producers of yellow butter insured a steady advancement of the breed from a butter production standpoint as well as protecting the golden yellow color, an asset highly prized by the early breeders. Because there was no export demand for Guernseys no effort eas made to improve the breed type until about 1860. Apparently around 1800, a majority of the Guernsey cows were black and white or brindle in color with black noses. The cows for the most part had sloping rumps and pendulous udders. Greated interest in cattle breeding resulted in the publication of a Guernsey Herd Book in 1878 and a second edition the following year. The work was then taken over by the Royal Guernsey Agricultural Society which published Volume I in 1882. This volume included the names of animals which appeared in the two earlier editions.

When buyers from England and the United States appeared on the Island, their presence acted as a stimulus in arousing more interest in breed type and the competition of shows carried the work along.

The use of immature bulls was prohibited by the Royal Guernsey Agricultural and Horticultural Society and no bull under one year of age could stand for service unless his dam or grand dam was inspected and passed by judges appointed by the Society. In 1907, when the first "Milk and Butter Tests" were started, this age limit was raised to 15 months. In 1911, the present system of Advanced Register tests patterned after the American method was established. This was so successful that the rules governing bulls for service were revised to read as follows:

"No bull shall be qualified for service before he is fifteen months old. No service book will be issued to an unqualified bull nor will his offspring be eligible for registry at the time of birth. No bull shall be qualified for service unless his sire's dam and his dam or his dam's dam are in the Advanced Registry and that the said dams in the course of qualifying have produced twenty per cent over their requirements for entry". In 1927, this requirement was increased to twenty-five per cent and because of the improvement noted below it is reasonable to expect the requirement will be increased from time to time. The grand dam is no longer qualified to register a bull unless his dam is dead and it is contemplated, at an early date, to require both dam and grand dam of a serving bull to be in Advanced Register.(1)

RESULTS OF ENFORCED SELECTION ON ISLAND OF GUERNSEY

Year	Pounds milk	Butterfat Pounds	Percentage of Butter-Fat
1920	8956	463	5.17
1921	9144	488	5.35
1922	9052	484	5.35
1923	9262	503	5.43
1924	9741	529	5.44
1925	10037	542	5.41

FACTORS INFLUENCING THE DEVELOPMENT OF GUERNSEYS

The first factor influencing the development of Guernseys is the breeds origin, the original cross being between hardy and economical feeding types.

The second factor is that the Royal Guernsey Agricultural Society has since 1812 held to the policy of eliminating unprofitable cows and forbidding the use of sires from undesirable dams.

(1) Savage, John M. Guernsey Breeders Journal, December 1, 1927

The care given the animals is another essential factor. The cows are tethered in the pastures and are moved at least three times daily. Close eating without wandering reduces the feed costs of milk production. Pasture land on the Island is limited. Cattle are never driven and the frequent handling no doubt explains why the Guernsey cow is known for its docile disposition.

The fourth factor includes both the climate and the inhabitants of the Island. Good pasturage grows throughout the year and the cattle are tethered out almost every day. The natives are economical herdsmen and have developed the Guernsey largely from the standpoint of utility.

Legislation accounts for the fifth factor by keeping the Island free from infectious diseases. No fodder or litter from countries in which infection is known to exist is allowed on the Island and all hay and straw packing must be destroyed immediately.

Tuberculosis was common on the Island twenty years ago, but it is practically eradicated now for only two animals reacted during the years 1925 and 1927.(1) The disease was first brought to the Island in show cattle that had been exhibited in England through special permission granted a Guernsey breeder.

ISLAND SHOWS

Cattle shows on the Island differ materially from those held in America. At the Whitsuntide Show held June 6, 1927, four hundred eighty-one head of Guernseys were exhibited. Two or more judges worked on each class and six or seven classes were judged at the same time. The same judges do not place more than one or two classes during the day. If the judges disagree, a referee is called to make the placing. Exhibitors are not allowed to clip their entries and no effort is made to pose the animals. The judges place greater emphasis upon dairy temperament and secretions than is done in our shows.

The first local show was held in July 1881, according to records in the first volume of the R.G.A.S. Herd Book. From then until March 1912, the animals were admitted as foundation stock and classified as "Commended", "Highly Commended" and "Very Highly Commended", according to the quality of each entry. These terms are indicated in herd books and pedigrees by the abbreviations "C", "H.C.", and "V.H.C.". Now all animals are marked as "qualified at local show" and no designation is made as to difference in the quality.

EARLY IMPORTATIONS INTO AMERICA

Although the Channel Islands cattle were imported over a century ago, no records were kept of the blood lines. Hill(2) credits the first importation, the records of which were kept, to a Captain Prince, of Boston, who made an importation in 1830 or 1831. A cow and a bull of this importation were recorded in the Herd Register in 1899 as the Pillsbury cow 11310 and the Pillsbury bull 5816. This was possible because of the accurate private records kept of the imported animals and their progeny which were raised on Cow Island in Lake Winnipesaukee, New Hampshire.

In 1840, cows numbered 1, 2 and 3 of the Herd Registry were brought to New York by Nicholas Biddle of Andalusia, Penna. The herd started at that time was kept up by his son, Judge Craig Biddle and later was maintained by Judge Biddle's nephew, Charles Biddle. In 192. this was credited with being the oldest herd of Guernseys in the United States. The second oldest herd was thought to be the one kept by James Logan Fisher, Olney Post Office, Philadelphia. This herd traces back t importations made by Charles Henry Fisher in 1855.

(1) Guernsey Breeders Journal, August 1, 1927

importations made in September 1902 had a marked effect on the development of the breed. Among those imported by F. L. Ames, during this month, were Hayes Rosie 15476, (714 pounds fat) Hayes Richesse 2nd, 15474 (642 pounds fat); and Princess Rhea 15479 (775 pounds fat). May Rose King 8336, a son of May Rose 2nd, was also imported at the same time by H. McK. Twombly, Madison, N.J. May Rose King is probably best known through his son, King of the May 9001, and was described as a dark colored, smoky-nosed bull for which Mr. Twombly is said to have paid $4,500. This bull, along with Imp. Itchen Daisy 3rd 15630 was selected in England by Joseph L. Hope.

In September 1906, J. L. Hope, Madison, N.J., imported the bull Masher's Sequwl 11462 (70 A.R. daughters and 37 A.R. Sons) and in 1905, Golden Secret of Lilyvale 10028 was imported by E. T. Price, Broad Axe, Pa. This bull proved a remarkable sire in the herd of T. W. and I. W. Roberts, Bala, Pa. One of his daughters Nellie Jay 4th, 38233 produced 20,709 pounds milk and 1019 pounds fat.

The following table shows the number of importations which have been recorded by the American Guernsey Cattle Club. The years 1913 and 1914 stand out as having the largest number of importations.

SUMMARY YEARLY IMPORTATIONS OF GUERNSEYS(1)

Year	Number	Year	Number	Year	Number
1840	3	1835	45	1907	248
1850	2	1836	11	1908	143
1851	1	1837	60	1909	582
1854	1	1883	20	1910	592
1855	2	1889	31	1911	862
1858	2	1890	62	1912	677
1867	1	1891	33	1913	1058
1868	1	1892	11	1914	1042
1869	12	1893	8	1915	241
1870	8	1894	34	1916	805
1871	19	1895	40	1917	688
1872	7	1896	19	1918	279
1874	12	1897	30	1919	780
1876	19	1898	72	1920	656
1877	42	1899	25	1921	211
1878	72	1900	6	1922	296
1879	42	1901	74	1923	348
1880	59	1902	60	1924	203
1881	162	1903	44	1925	141
1882	123	1904	35	1926	250
1883	296	1905	258	1927	205
1884	69	1906	236	1928	173
				Total	12,372

Very few Guernseys have been imported during the past few years as 29 head were imported in 1931 and only one animal brought over from the Island in 1932(2)

Among the importers of Guernseys, Joseph L. Hope, Madison, New Jersey, is probably the best known. In 1902 he became manager of Florham Farms which had been established just a year previous. This farm located at Madison, New Jersey, was owned by H. McK. Twombly. In 1907, Mr. Hope purchased the herd and continued breeding Guernseys until the herd was dispersed in May 1933. Among the many noted Guernseys handled by Mr. Hope were Imp. May Rose King 8336; Imp. Itchen Daisy 3rd 15630; Imp. King of the May 9001 and Ne Plus Ultra 15265.

(1) Data from American Guernsey Cattle Club,
(2) Secretary's Annual Report. Guernsey Breeder's Journal, May 15,1933

F. L. Ames, owner of Langwater Farms, North Easton, Massachusetts, was one of the outstanding breeders of Guernseys at the time of his death in 1921. In the fall of 1906, he purchased from Florham Farms what was then the entire May Rose family in America. The effect of this selection was very important in the development of the Langwater herd.

ORGANIZATION OF CLUB

The American Guernsey Cattle Club was organized February 7, 1877 at the Astor House, New York City, and the office is now located at Peterboro, N.H. with Karl B. Musser, as secretary. The Guernsey Breeders' Journal, devoted to the advancement of the breed, is published by the Club bi-monthly.

Forty-four volumes of the Herd Register have been published and over one half million head had been registered to July 1929. Since the publication of the last Herd Book in 1929 over 150,000 animals have been registered.

ADAPTABILITY OF GUERNSEYS

The Guernsey cow is unsurpassed in the production of special market milk where emphasis is placed upon color and richness. For this milk a premuim is often paid even though other milk may test as high but shows less of the golden yellow color.

Guernseys are well adapted for use in mixed herds where a few grades of this breed may be used to increase the color and butterfat test of the milk from the lower testing breeds.

Because of the yellowness of the cream it is very well adapted to the making of farm butter since additional color need not be added to the cream.

CHARACTERISTICS

Guernseys vary widely in color from the lightest shades of fawn to the darker or reddish shades of fawn. The most desired color according to the official score card is the medium shade of fawn with a white shield on the forehead, white shoulders and hips, white belly, legs and switch, and with a buff nose. Some breeders discriminate against those animals which have mottled, smoky or black noses.

In milk condition, Guernsey cows should weigh about 1100 pounds while mature bulls average around 1700 pounds in weight.

The Guernsey cow gives the impression of being plain yet bred for utility. Her face lacks the fish found in the Jersey head and often it is Roman nosed. The horns and hoofs are amber color and the eyes are not as prominent as in Jerseys. There is a slight resemblance between the two breeds but the Guernsey is larger, coarser boned and shows less quality and refinement than does the Jersey.

In temperament, the Guernsey is much like the Holstein, being quiet, docile and easily handled. The breed still shows a certain lack of uniformity in conformation when compared with some of the other dairy breeds but a marked improvement has been made in breed type during the past few years. Guernseys do not mature quite as rapidly as do Jerseys. Heifers of this breed are usually bred to freshen at from 26 to 28 months of age.

The most important item considered on the score card is the pigment secretion of the skin for which 20 points are given. There is a very close relationship between the color of the skin secretion and the color of the internal fat but a difference of opinion exists as to the correlation between the color of the secretions and the color of the milk. According to Palmer and Eckles (1) the secretions do not indicate the ability of either Jerseys or Guernseys to secrete yellow fat under all conditions. This depends largely upon the abundance of carotin and zanthophyls in the feed. These pigments cannot be synthesized in the cows body, but may be stored in the body fat which furnishes a supplementary source when feeds low in pigment are consummed. The color or abundance of secretions does not indicate either the quanity or quality of milk produced.(2)

The color of the dairy products produced by the Guernsey is a valuable commercial asset and explains in a measure the reason for the premium which is often paid for Guernsey milk. The carcass of the Guernsey is usually discrimminated against for meat because of the yellow color of the body fat but this is due to the presence of the same pigment which makes Guernsey milk and cream so popular.

Several undesirable characteristics are rather commonly found in this breed. Among them are irregular shaped udders, winged shoulders, low loins, and rough high tail settings. These undesireable features though should soon become less common because of the revision of the scale of points in 1926 and the adoption of the ideal Guernsey type.

Guernsey calves weigh from 60 to 70 pounds at birth. They are not as easily raised as the calves of either the Holstein or Ayrshire breed, and as a rule do not make profitable veal.

DAIRY CHARACTERISTICS

The Channel Island breeds differ only slightly in average butterfat production. Guernsey milk averages about five per cent in test, which is slightly lower than the test of Jersey milk, but they produce somewhat more milk. In color, Guernsey milk ranks first and the butterfat globules rank with the Jersey in being the largest among the dairy breeds. The average of all yearly advanced register records (29,613) for all ages up to June 1, 1933 is 10,283.9 pounds of milk and 508.5 pounds of fat. The average butterfat test for these records is 4.94%.

GUERNSEY FAMILIES

The families in the Guernsey breed are not as numerous as those found in some of the other dairy breeds. The May Rose family is by far the most popular. This strain descended from May Rose 2d 3251 whic was dropped on the Island of Guernsey and later exported to England.

The May Rose family, as such, has to a certain extent lost its identity through the development of a number of popular sub-families or strains.

The Frances and Sequels descended from the Imp. LaBelle Frances 14454 and another strain, the Glenwoods from Imp. Glenwood Girl 1693. Sires used in The Pennsylvania State College herd about thirty years ago traced back to Imp. Glenwood Girl.

Another of the older families, the Cherubs, trace back to Imp. Hayes Golden Cherry 21605. The Sheet Anchor family were developed by breeding Sheet Anchor 2934 to Rutila's Daughter 6670. A son of these two, Mainstay 3789, was the grand sire of one of the College herd sires

(1) Mo. Research Bul. 11
(2) Ken. Research Bul. 234

used in 1905 and 1906, Lucretia's Glenwood Boy of Haddon 9264. The Grand dam of this bull was Glenwood Girl 6th 9113, the first Advanced Register Guernsey cow.

Quite a number of branches or strains have been developed from these older families and they have met with considerable popularity.

THE ADVANCED REGISTER

Glenwood Girl 6th, 9113, has the distinction of being the first Guernsey cow to receive a certificate for a years record in the advanced Register, the rules of which were adopted by the Americah Guernsey Cattle Club on May 15, 1901. Her record was 12,187 pounds of milk and 572.3 pounds of butterfat.

For some time prior to the adoption of the advanced Register, private tests had been conducted. In October 1894, Imp. Bretonne 3660, completed a record of 11,218 pounds of milk and 753.6 pounds of fat. Lily Alexandre 1059, in 1889, finished a milk production record of 12,856 pounds. She was owned by Mark Hughes, West Grove, Penna.

To encourage breeders to test their cows premiums were first offered by the Club in 1894 and the Home Butter Tests were started in November 1898. The interest aroused in the tests lead to the adoption of the Advanced Register rules in 1901. The test periods at first were for seven and 365 days, but after the completion of some two hundred 7 day tests, the short time tests were discontinued. Interest seems to have been centered in the yearly tests from the start and the Guernsey Cattle Club was the first organization to adopt long time records.

Three volumes of the Advanced Register have been published. Records of Guernsey cows may be found under the names of their sires which are listed alphabetically or in an alphabetical list of all cows with records found in the appendix of each volume.

GUERNSEY ADVANCED REGISTER REQUIREMENTS(1)

	SINGLE LETTER CLASS	DOUBLE LETTER CLASS *	TRIPLE LETTER CLASS
Length of Test	365 days	365 days	305 days
Requirements A Mature B Sr. 4 C Jr. 4 D Sr. 3 E Jr. 3 F Sr. 2 G Jr. 2	400 lbs. fat 290.5 lbs. fat.	400 lbs. fat 290.5 lbs. fat	360.0 lbs. 250.5 lbs.
Calving Requirement	None	Carry calf 265 days during test. Register calf or file birth report.	Carry calf 175 days during test. Register Ca or file birt report
Increase per day up to maturity	.1 lb.	.1 lb.of fat	.1 lb.of fa
Number of milkings per day			Not more th 3 times dai during first sixty days

Average Production July 1, 1933	29,613 records 10,283 lbs.milk 508. lbs. fat	6400 records 9850 lbs.milk 494 lbs.fat	3088 records 8075 lbs.milk 406 lbs.fat

* Discontinued May 9, 1933

It will be noted in the above table what little effect the carrying of a calf has on the average production of cows tested in the single and double letter classes. All cows tested in the single letter class averaged 10,283 pounds of milk and 508 pounds of butterfat Those entered in the double letter class which carried a claf at least 265 days during the test period produced only 433 pounds of milk and 14 pounds of fat less than those entered in the class which has no calving requirement.

The double letter class was discontinued on May 9, 1933 by action of the executive committee of The American Guernsey Cattle Club. At the same time the triple letter class requirements were changed to allow a cow entered in this test to be milked three times daily during the first thirty days and if she equals or exceeds the yield shown below she may be milked three times daily an additional thirty days.

Class A	47 lbs.	Class E	39 lbs.
Class B	45 lbs.	Class F	37 lbs.
Class C	43 lbs.	Class G	35 lbs.
Class D	41 lbs.		

In no case may a cow entered in the triple letter class be milked more than twice in twenty-four hours except during the first sixty days of her test period.

YEARLY RECORDS DISCONTINUED OR EXTENDED

According to the Advanced Register Rules any period of 365 consecutive days or less in which a cow has made her requirements, may be used for determining her record, regardless of anytime lost on account of being dry during that period. The amount of time a record is extended shall be taken from the first part of the record.

HERD IMPROVEMENT TEST

The Herd Improvement Division of the Advanced Register was established in 1930 to make available to Guernsey breeders a test recognizing records of regularly organized dairy herd improvement associations.

This Division of the Advanced Register is open to both grade and purebred Guernseys, but the testing of grades is optional.

The following table lists the names of cows holding the breed yearly record for all ages from 5 to 18 years:

LEADING YEAR'S RECORD FOR AGED COWS(1)

Age	Name and Number	Milk	Butter fat	Days Carried Calf
5	Gertrude Claire 99550	20738.1	1020.0	79
6	Countess Prue 43785	18626.9	1103.3	0
7	Langwater Nancy 27943	18783.5	1011.7	0
8	Murne Cowan 19597	24008.0	1098.2	202
9	Yeska's Tops of Gold's Fannie 22362	19794.9	931.5	119
10	Gay Lad's Marion 56492	17208.9	933.9	27
11	Dairymaid of Midlothian 57204	16170.0	815.8	204
12	Ashley's Queen 49257	16422.9	775.3	185
13	Eudoxia 57236	15238.8	811.0	39
14	My Lady Baltimore 2d 21165	15424.4	713.2	251
15	Daylight Miss 12572	11779.3	546.0	29
16	Golden Kitty of Lewison 23603	15450.8	735.5	74
17	Beauty of Shady Lawn 16272	9370.5	458.4	0
18	Lillie Paul 17402	13864.4	540.6	62
	YOUNGEST COW OF GUERNSEY BREED TO MAKE A RECORD			
1 yr. 137 das.	Lucerne's Alma 127811	5203.0	294.0	

Little Beauty 2d 45221 is the Long Distance Champion of the breed, having completed seven advanced register records totaling 74,360.7 pounds of milk and 3,791.5 pounds of butterfat.

Caribou Rosalie 131869 has the highest average of milk and butterfat of any Guernsey cow completing five or more consecutive records. The average of her five records is 15,036.8 pounds of milk and 800.6 pounds of butterfat. She is owned by Dr. T.F. Branson, Bryn Mawr, Pa. (2)

Palotterie of High Rock 187483, owned by S. M. Merrill, Ipswich, Mass., is the only Guernsey cow to complete three 900 pound records and make an average for four records of 913.9 pounds of butterfat. (3)

Gipsy of Harris Mill 13th, owned in England, holds the Guernsey record for the amount of milk produced in twenty-four hours. Her largest day's production was 106-5 pounds of milk. The highest day's milk production for a Guernsey cow in the United States is held by Grassland Zenoria 185315 with a record of 93.1 pounds. (4)

That Advanced Register testing pays is shown by an analysis of the public auction sales for 1932. In these sales Guernsey cows over two years of age with Advanced Register records sold for an average of $231. Cows without Advanced Register records and without Advanced Register Laws sold for an average of only $133. or less than sixty percent of the sales value of cows with Advanced Register record Cows without records but from Advanced Register dams sold for an average of $181.00. It is evident from a study of the auction sales in 1932 that buyers of pure bred Guernseys were willing to pay about $100 more for females with Advanced Register records than for those without records.

(1) Guernsey Breeders' Journal, January 1, 1928
(2) Guernsey Breeders' Journal, May 15, 1929
(3) Guernsey Breeders' Journal, April 15, 1933
(4) Guernsey Breeders' Journal, March 1, 1933

HIGHEST SUCCESSIVE RECORDS MADE BY GUERNSEY COWS(1)

Name and Number and Owner	Lbs. Milk	Lbs. Fat	Date Approved
Glenwood Girl 6th 9113, A.R. 1 E.T. Gill, Haddonfield, N.J.	12187.33	572.30	April 1902
Portia of Maplehurst 10071 A.B. Tallman, Perry,N.Y.	11622.65	602.37	June 1902
Charmante of the Gron 14442 (Imp) H. McK. Twombly,Madison, N.J.	11874.76	676.46	Oct. 1903
Hayes Rosie 15476 (Imp.) F.L. Amesm North Easton,Mass.	14633.08	714.31	Apr. 1904
Princess Rhea 15479 (Imp.) F. L. Ames, North Easton,Mass.	14009.89	775.69	May 1904
Yeska Sunbeam 15439 Fred Reitbrock,Milwaukee,Wis.	14920.80	857.15	Oct. 1905
Dolly Dimple 19144 (Re-entry) F. L. Ames, North Easton,Mass.	18458.80	906.89	Oct. 1909
Dairymaid of Pinehurst 24656 R E.W. Strawbridge,Moorestown,N.J.	17285.30	910.67	Jan. 1912
Spotswood Daisy Pearl 17696 O.C. Barber, Barberton, Ohio	18602.80	957.38	March 1912
May Rilma 22761 (Re-entry) J.P. Crozier, Upland, Pa.	19673.00	1073.41	May 1914
Murne Cowan 19597 (Re-entry) O.C. Barber, Akron, Ohio	24008.00	1098.18	March 1915
Countess Prue 43785 (Re-entry) F.L. Howes, Groton, Mass.	18626.90	1103.28	Dec. 1920
Anesthesia Faith of Hill Stead 114354, Class B Mrs. J.W. Riddle, Farmington,Conn.	19741.90	1112.50	Nov. 1925

(1) Guernsey Breeder's Journal, May 1, 1926

GUERNSEYS THAT HAVE PRODUCED 1000 POUNDS OR MORE BUTTERFAT IN ONE YEAR (1)

Name	Lbs. Milk	Lbs. Fat
Anesthesia Faith of Hill Stead 114354, A.R. 12732 (Dead) Mrs. J.W. Riddle, Farmington, Conn.	19741.9	1112.5 B
Countess Prue 43785, A.R. 6909 (Dead) F.L.Howes, Groton, Mass.	18626.9	1103.3 A
Murne Cowan 19597, A.R. 1906 (Dead) O.C. Barber, Akron, Ohio	24008.0	1098.2 A
May Rilma 22761, A.R. 1726 E.B. Cassatt, Berwyn, Pa. Est. John P. Crozer, Upland, Pa.	19673.0	1073.4 A
Baudy's Daisy of Buena Vista 212457,A.R. 24159 Willyard Brothers, Ravenna, Ohio	21055.8	1063.4 A
Marigold of Elgarcon 137240, A.R. 22343 Mrs. G.L.C. Tucker, Willoughby,Ohio	19697.5	1028.3 A
Wolfpen Lilac 221332, A.R. 30481 Mrs. Helen Sears Bradley, Southboro,Mass.	17637.6	1028.3 A
Gertrude Claire 99550, A.R. 15917 Floyd R. Hartzell, Renfrew, Pa. Missouri Improvement Co., Bismarck,Mo.	20738.1	1020.0 A
Nolla Jay 4th 38233, A.R. 3194 T.W. & I.W. Roberts, Bala, Pa.	20709.9	1019.3 A
Langwater Nancy 27943, A.R. 1826 (Dead) I. C. Blandy, Grenwich, New York	18783.5	1011.7 A
Dairy Maid Queen of Spring Hill 74067, A.R. 8231 Myron A. Wick, Chagrin Falls, Ohio	18180.7	1011.2 A
Proud Dora of Ecgo Glade 151373, A.R. 16679 F.J. Rueping, Fond du Lac, Wisconsin	19147.5	1007.1 A
Langwater Hope 27946, A.R. 1978 (Dead) F.L. Ames, North Easton, Mass	19882.0	1003.2 A
Imp. Charmeuse of Ponchez 253818, A.R. 26872 Est. Harry S. Griffin, Nabnasset, Mass.	19158.5	1057.8 A

(1) Data checked to August 15, 1933. The name of the owner at the time the record was completed is given first and the name of the present owner follows if the animal is still living.

SUMMARY OF AUCTION SALES FROM 1915 to 1933 (1)

Year	No. sales	No. of Animals	Average Sale Price
1915	9	278	$ 217.12
1918	38	904	366.34
1919	29	1309	546.19
1920	49	2459	508.87
1921	34	1281	341.62
1922	21	966	540.18
1923	23	1230	333.09
1924	39	2169	380.06
1925	41	2227	293.58
1926	38	1747	312.15
1927	34	1572	388.04
1928	35	1705	365.27
1929	37	1619	419.43
1930	42	1470	268.06
1931	31	1350	220.66
1932	33	1461	162.94

(1) Guernsey Breeder's Journeal, February 1, 1933

Similar to the trend of prices in other breeds Guernseys have brought quite a bit less at public sales during the past few years, showing a marked decline from the peak prices reached in 1919. On the average though Guernseys have sold for considerably more money than have the cattle of other dairy breeds.

GRAND CHAMPION GUERNSEY COWS AT NATIONAL DAIRY SHOWS

1906	Gertrude Kelly 13709	M.D. Cunningham, Kansasville, Wis.
1907	Queen Sanatine 18574	M.D. Cunningham, Kansasville, Wis.
1908	Twilight Lonan 12484	C.L. Hill, Rosendale, Wis.
1909	Victoria of F. Cavine 19969	Fred Vogel, Milwaukee, Wis.
1910	Glencoe's Bopeep 18602	W. W. Marsh, Waterloo, Iowa.
1911	Glencoe's Bopeep 18602	W. W. Marsh, Waterloo, Iowa
1912	Glencoe's Bopeep 18602	W. W. Marsh, Waterloo, Iowa
1913	Jessy Rose 10th 28373	W. W. Marsh, Waterloo, Iowa
1914	Deanie 16th 52344	W. W. Marsh, Waterloo, Iowa
1916	Princess Bergere 33074	W. W. Marsh, Waterloo, Iowa
1917	Princess Bergere 33074	W. W. Marsh, Waterloo, Iowa
1918	Bella 2d du Grand Fort 36346	Island Farm, Island, Minn.
1919	Prospect's Rose des Houards 89003	W. W. Marsh, Waterloo, Iowa
1920	Mildred 2d of Les Godaines 55120	Jones & McKerrow
1921	Ma Chere Poeris 55855	D. D. Tenney, Crystal Bay, Minn.
1922	Jeanette of the Prairie 2d	W. W. Marsh, Waterloo, Iowa
1923	Langwater Levity 70293	M. A. Wick, Cleveland, Ohio
1924	Mixter May Princess 124304	Emmadine Farm, Hopewell Jct., N.Y.
1925	Admiration of the Prairie 117699	Emmadine Farm, Hopewell Jct., N.Y.
1926	Hope of Cornus Farm 160514	W. W. Williams, Lyon Mt., N.Y,
1927	Shuttlewick Levity 101850	W. W. Williams, Lyon Mt., N.Y.
1928	Gems Pride of the Gron 160500	Emmadine Farm, Hopewell Jct., N.Y.
1929	Shuttlewick Levity 101850	W. W. Williams, Lyon Mt., N.Y.
1930	Moose Valley Minuet 159989	Boulder Bridge Farm, Excelsior, Minn.
1931	Ruth Mary Rose of Mills Center 300368	Cleo Hoy, Lincoln, Nebr.
1932	No Show	

GRAND CHAMPION GUERNSEY BULLS AT NATIONAL DAIRY SHOWS

1906	Robina's Standard 7254	M.D. Cunningham, Kansasville, Wis.
1907	Endymion 8916	Helendale Farm, Athens, Wis.
1908	Golden Lad of Rosendale 9121	C. L. Hill, Rosendale, Wis.
1909	Lord Mar 14359	W. W. Marsh, Waterloo, Iowa
1910	Hero of Courtil Blicq 14088	W. W. Marsh, Waterloo, Iowa
1911	Hero of Courtil Blicq 14088	W. W. Marsh, Waterloo, Iowa
1912	Yoeman 8618	F. L. Ames, Easton, Mass.
1913	Haye's Cherub 2d, 25147	W. W. Marsh, Waterloo, Iowa
1914	Haye's Cherub 2d, 25147	W.W. Marsh, Waterloo, Iowa
1915	Lady Smith's Cherub 30760	D. D. Tenney, Crystal Bay, Minn.
1917	Lady Smith's Cherub 30760	D. D. Tenney, Crystal Bay, Minn.
1918	Lady Smith's Cherub 30760	D. D. Tenney, Crystal Bay, Minn.
19[illegible]	Dauntless of Edgemore	Shorewood Farm, Crystal Bay, Minn.
1920	Itchen May King 25174	F. E. Fox & G. Kingston, Waukesha, Wis.
1921	Cherub's Pearl Royal of Shorewood 58824	D. D. Tenney, Crystal Bay, Minn.
1922	Boss of Koshkonong Place	Tarr Bros., New Auburn, Wis.
1923	Deanie's Marose of Appletree Point 62742	N. A. Woodbury, Burlington, Vt.
1924	Shorewood Resolute 71989	Emmadine Farm, Hopewell Jct., N.Y.
1925	May Rose Cherub 70934	Grangeville Guernsey Farm, Idaho
1926	Shorewood Resolute 71989	Emmadine Farm, Hopewell Jct., N.Y.
1927	Border King of Roberts 71645	P. R. Johnson, Independence, Kan.
1928	Border King of Roberts 71645	Glencliff Farm, Independence, Kan.
1929	Border King of Roberts 71645	Glencliff Farm, Independence, Kan.
1930	Fernbrook King Hendrick 122009	George White, Coxsackie, N.Y.
1931	Langwater Waldorf 128541	Boulder Bridge Farm, Excelsior, Minn.
1932	No Show	

CHAPTER VIII

AYRSHIRE CATTLE

NATIVE HOME

The home of this breed of dairy cattle is in the County of Ayr, in the southwestern part of Scotland. The county stretches for 90 miles along the lower portion of the river Clyde and the Irish Sea. The land is generally low toward the coast, but further inland it rises in rolling hills and gradually ascends until the country becomes quite rugged and hilly, 2,562 feet above sea level. The soil is moderately fertile and the crops raised are the same as in our Northern States. The natural pasturage is not abundant and is distributed so much thatgrazing animals must travel long distances in a day to satisfy their appetites. The climate is moist and very windy , being exposed to the warm moisture laden southwest winds. The warm Gulf Stream prevents very cold winteres, but still there is a severity about the atmosphere which requires a strong rugged animal to thrive in the climate.

In spite of this serious handicap, ayr is one of Britian's leading agricultural districts, having an extremely large acreage of oats, green crops, hay, clover and grasses. About 50,000 acres of oats are tilled annually. The potato crop is one Ayr's most profitable crops, some 10,000 acres being normally seeded. Turnips, mangolds and carrots are raised in abundance, taking the place in the Scottish dairy ration which silage plays in America. Approximately 170,000 acres are in pasture, half of it in permanent form.

Dairying is Ayr's greatest agricultural asset and it is continually developing in importance. The cheese industry has become a big commercial asset, the fame of the Ayrshire product being world famous and draws particular attention to the Ayrshire cow for cheese production. The introduction of local creameries and milk shipping stations has brought many changes in dairy farming.

To show the prominence to which cattle breeding has attained in Ayr at an early date, it may be mentioned that the first cattle show was held at Kilmarnock in 1793. This was the first recorded occasion on which a regular dairy show or competition such as we now know it was held. The Highland Society, first organized in 1786 had been giving premiums annually for West Highland and black cattle, but none were offered for Ayrshires until 1814.(1)

ORIGIN

As nearly as can be determined, Ayrshire cattle seem to be the result of a cross of several foreign breeds upon the native stock of Ayr. This crossing began to take place shortly after the middle of the eighteenth century. Ayrshire cattle are not a native or indigenous race, like the Jersey and Holstein, but are a breed begun to be formed first by the inhabitants of the district of Cunningham in Ayr County, somewhere about the year 1780. Dairy husbandry, particularly butter and cheese making, had become the peculiar distinguishing boast of the district at a very remote period. The cows kept in the district of Cunningham and Kyle at this time are thus descri Aiton, writing in 1815 on the cattle of Ayr - "They were of diminutive size, ill-fed, ill-shaped, and yielded but a scanty return of milk; they were mostly of a black color with large stripes of white along the ridge of their backs, about their flanks or in their faces. Their horns were high and crooked, having deep ringlets at the roots, the plainest proof that the cattle were but scantily fed. The chine of the

(1) Spier, John. The Origin and Early History of the Ayrshire Breed of Cattle.

backs stood up high and narrow; their sides were lank, short and thin, their hides thick and adhering to the bones; their pile was coarse and open. Few of them yielded more than three or four Scots' pints of milk per day when in their best plight; or weighed more than twelve or sixteen to twenty stones avoirdupois."

Low, an English writer of the time of the Revolutionary War speaking of conditions in Ayr, says; -"There were no fallows, no sown grasses, no carts nor wagons and no straw yards; no roots were grown, very little straw and no hay, save the small amount cut from the bogs and wastes. Under these conditions the cattle were starved in winter, being scarcely able to rise in the spring, and were never in condition fit for market".

In the struggle for existence under unfavorable conditions, only the fittest could survive, and the foundation stock of the breed possessed hardihood, ruggedness and the ability to forage for a living as its most prominent characteristics.

Aiton says further: - "It is impossible that these cattle fed as they were then could be of great weight, well-shaped or yield much milk. Their only food in winter and spring was oat straw or what they could pick up in the fields where they were turned almost every day; with a mash of corn and chaff daily for a few days after calving. Their pasture in summer was of the worst quality. The land was then under such barbarous courses of cropping, and so much over cropped, that when turned into pasture it yielded little else but weeds and a few natural grasses of the worst quality. This coarse pasture was so much over-stocked and eaten so bare that the cattle were half starved".

When Aiton wrote forty years later, a wonderful change had been made in the condition and quality of the Ayrshire dairy stock. The improvement had been made by better methods in tilling and cropping the soil, by better threatment and feeding of the stock and by skillful breeding. How the change in breeding and introduction of new blood came about is best told by Aiton himself.

"I have not been able to trace the commencement of these improvements to any particular person or family. About the year 1760 or between that and 1770, some nobleman and gentlemen who resided in the eastern and southern counties of Scotland procured cows of some English or Dutch breed which were much larger in size than any other then in Scotland; and when these were well fed on the sheltered and improved lands round the seats of their owners, they yielded far more milk than the native cows. But when these cows were turned into pasture that was much inferior to that on which they had been reared they fell short in milking. I am really uncertain as to the district or county from which these strange cows were brought. They certainly were called Dutch cows when first introduced into Ayrshire. But from being of a brown and white color, I am disposed to believe they were of the Teeswater a (Durham County, England) breed".

"Neither have I been able to discover who it was that first introduced them into the bailliary of Cunningham, nor to point out all those who did so. John Dunlap, Esquire, brought some of these English or Dutch cows to his byres at Dunlap House in Cunningham soon after the year 1760. As they were there provided with the best pasture as the dairy was much attended to in that neighborhood, and as the improved breed of the mixed brown and white color came into vogue about Dunlop and Stewarton sooner than in any other part of Cunningham, it is likely that Mr. Dunlop's were among the first of the strange breed that reach Cunningham".

"The Earl of Marchmont, about 1750, purchased from the Bishop of Durham several cows and a bull of the Teeswater of some English breed all of a brown color spotted with white; and his lordship kept them some time at his seat in Berwickshire. Bruce Campbell, Esquire, then factor on his lordship's estate in Ayrshire, carried some of that breed to Cornberg, in Kyle, where they were kept some time and their progeny spread over different parts of Ayrshire. A bull of that stock was sold by Mr. Campbell to John Hamilton, Esquire, of Sundrum, and raised numerous offspring in that quarter of Ayrshire".

Long before the breed was known as the Ayrshire it has increased in numbers to such an extent as to be of considerable importance. They were first known as Dunlops cattle from the introduction of the breed until sometime about 1775. With its wider distribution animals became known a Cunningham cattle until about 1815. In 1803 for the first time, the name Ayrshire began to be substituted for that of Cunningham. In 1814, the Highland Society first gave premiums for the best bulls and heifers of the Ayrshire breed.

The breed has been established over a century prior to this or at least prior to 1700. However, there were no cattle answering to the description of the Ayrshire in 1600 when a survey of the country was made, according to Spier.

Summing up all the evidence obtainable, the Ayrshire breed appears to be the result of a crossing of the native cattle of Ayrshire with representatives from various other breeds, including English, (probably the original Shorthorn known as Teeswater). Dutch or Holland cattle and Channel Island cattle. The Ayrshire of today is found best developed in the district of Cunningham. Some people believe the Ayrshire to be closely related to the original white cattle of Great Britian, a hard of which is still kept in a wild state, in Chillingham Park, England. This belief is held because of the resemblance of the two breeds in shape of horm and general conformation and because of the increasing tendency of the Ayrshire to become more white in color. It is probable that no blood of these foreign breeds was introduced into the Ayrshire within the last century, unless possibly that of some English breed. With the infusion of fresh blood during the latter part of the eighteenth century and by continually using improved methods, the thrifty Scotchman has moulded a dairy cow which is suited to his needs and which has proven herself of great value in other countries. The most marked improvements have been made since 1805. For the first time a recognized standard for Ayrshires was adopted in 1853 by the Ayrshire Agricultural Association.

The Scotchmen have raised these cattle with a view of turning every resource of the animal to profit. The infusion of English blood has given them a tendency to lay on flesh. Such tendency, is however, not so strong as the strictly milk producing habit. When dry Ayrshire cows fatten readily. The calves make excellent veal and most of them which are not wanted for breeding or keeping up the dairy are turned off in this way. Notwithstanding all this fattening tendency, the Ayrshire still remains a truly dairy cow.

In 1811, Aiton, writing in the Farmer's Magazine, stated that Fulton, of Beith, introduced Ayrshires into that section of the country in 1790. Beith is about ten miles from the village of Dunlop. This is the first mention of Ayrshire cattle as a distinctive breed. Ayrshires were early recognized for their commercial possibilities as early as 1800 when large dairies were specializing in Ayrshire cattle. Wilowbank Dairy, operated by Wm. Harley, a Glasgow merchant, was ont of the early pioneers, not only in the building up of a large dairy herd, but in the operation of improved sanitary dairy barns. He maintained a berd of three hundred Ayrshires.

The improvement of the breed seems to date from 1750. Historians quote that year most frequently in their reviews. John Spier the founder of the milk record work in Scotland, traces out the purity of the breed and the beginning of the seventeenth century at which time the breed existed under the name of Cunningham.

The Origin of Some Ayrshire Characteristics(1)

TEATS

The small teats of the Ayrshire during the last half of the last century have done more to discredit the breed than all of its faults put together. In 1853, when a committee from the Highland Agricultural Association met to formulate a score card, the first reference was made as to the length of teats which were to be from 2 to 2½ inches long. Twelve years later a leading Scottish breeder and exhibitor of Ayrshire stated that the teats should be from 1 to 1½ inches in length. Other breeders in promoting this fashion of breeding for teats no larger than a thimble and neglecting the producing ability of their cows worked considerable injury to the breed. In their native home cows with small teats would be milked fairly satisfactory because the bulk of the milking was done by women, but in countries where the milking was done by men the short teated cows were not welcomed.

HORNS

The upturned horns probably owe their popularity to the Swinless herd which entered a great influence on the development of Ayrshires subsequent to 1800. This was the leading show herd during the early part of the 19th century and from it breeding stock was sent to all parts of Scotland.

UDDER

Very early in the development of the breed attention was directed to perfecting the shape of udder. Writing in 1829, John Robertson stated the udder should be shaped like a well turned punch bowl with teats widely set. Another early writer when describing the udder says "it should be like a large soup plate". Not until the score card was drawn up in 1853 was mention made that the udder should be level floored

COLOR

Writing in the latter part of the eighteenth century Gilbert Burns advised the farmers in Ayrshire to select cattle with "a soft skin of the fashionable colours, whatever these may be". A little later another writer stated that Ayrshire cattle were mostly brown with spots of white. At one time in Scotland there were numerous Ayrshires, presumed to be pure bred, which were black and white in color instead of red and white which even then was regarded as the typical color. As late as 1914 a black and white Ayrshire heifer won a prize in the Kilmarnock, Scotland, show.

Ayrshires which were first imported into the New England states were red and white in color but the red predominated. Now the majority of animals seem to carry more white than red.

INTRODUCTION INTO AMERICA

The first importation of Ayrshires to the United States was about as early as any other dairy breed as records show of some being brought to Windsor, Connecticut in 1822 by H.W. Hills. Importations were made

(1) Spier, John, The Origin and Early History of the Ayrshire Breed of Cattle.

into New England in 1837 by the Massachusetts Society for the Promotion of Agriculture.

Imported animals pleased their owners in easy keeping qualities hardy constitution, well shaped udders and great milking capacity, However, they were very unsatisfactory milkers on account of having short teats, and they failed to obtain the strong foothold which they had in Scotland and Canada, where the milking was largely done by women, who preferred a small, short teat, since they milked by stripping with the thumb and forefinger.

Because of the short teats the importations into the United States gradually ceased and owners of Ayrshire cattle began, by breeding and selection, to lengthen the teats and at the same time retain the breeds daily quality and hardiness. This has been done and today the Ayrshires of the United States are undoubtedly better dairy Ayrshires than those found in either of the other two homes of the breed

From the Civil War until the World's Columbian Exposition in 1893 the breed was not exploited and though popular in the East it was practically unknown to Western farmers. At the World's Fair, however, it was priminently displayed and the general public came to a realization of the fact that the Ayrshire was a breed of considerable merit. Two distinct types of Ayrshires were exhibited at the Exposition. The New England or American type was short in the leg, heavy-bodied, good handlers, brown or cherry red in color and flecked with white. The cows, had large, capacious udders, perhaps a little inclined to be pendant with good-sized teats. The Scotch or Canadian type, straighter in back and were mostly white in color, with spots of various shades of red on the head and neck. The udders of the cows were large, level and square, and each was closely attached to the body of the animal. The teats were ideally placed but were entirely too small, in the opinion of most of the farmer visitors. The Scotch animals were uniform in type and made an attractive appearance in comparison with the New England stock, which was inclined to be irregular. The judge at the World's Fair was a Canadian and naturally favored his own type.

DISTRIBUTION OF BREED

The breed has reached its greatest popularity on this side of the Atlantic in Canada and in the Northeastern section of the United States. Approximately two-thirds of the membership and an equal number of the breed's cattle are found in New York, Pennsylvania, and the New England states. The breed is also quite well represented in Kansas, Wisconsin and Minnesota.

SCOTTISH VERSUS AMERICAN TYPE(1)

"I am doubtful if the type desired by American and Canadian importers is the best type for Scotland, where the conditions are so different. In Canada the dairy cow is largely a stall-fed animal. The pastures are generally green for about two months in the year, and ensilage or alfalfa is to them what green grass is to us in Scotland. They have neither the moist, cloudy, changeable weather not the damp wet soil which we hace here. The old-fashioned, short-legged, brownish or mealy cow of the past decade proved the thriftiest, milkiest, and healthiest for Scotland. The big, strong-boned, leggy, white colored cow is seldom the most profitable in a herd on the average farm. The Ayrshire is not, naturally, a big cow, and the big Ayrshire as a rule does not give as good a return for the food consumed as a medium sized one does. The American everyday type is not so tall as the Canadian, but deeper in the body and browner in color, and crummie of the horn. In Australia and New Zealand they don't want the Canadian type - they require depth, stamina and color. The size of a farmer's cows will be

(1) James Dunlap, Scotland - January 1, 1922, Ayrshire Digest

determined to some extent by the quality of the "Gang" and it is unwise policy to work against Nature. In the future, Scottish farmers will be well advised to breed the type of Ayrshire cow most suitable to their farms, without regard to export requirements either east or west, north or south".

ORGANIZATION OF THE AYRSHIRE ASSOCIATION

On April 5, 1859, breeders from New England and New York met for the organization of "The Association of Breeders of Thoroughbred Neat Cattle". From this earliest organization came a meeting January 31, 1875 in Albany, New York, at which was organized the Ayrshire Breeders Association. Forty-four volumes of the Ayrshire Record or Herd Book have been published which contain the registrations of about 150,000 animals. The Association office is located at Brandon, Vermont and the Secretary is C. T. Conklin.

CHARACTERISTICS OF AYRSHIRE CATTLE

Color. The prevailing color is red or brown and white, variously proportioned. The red is sometimes bright, but often of a rich, shiny brown or chocolate. Sometimes the color is a dull brown, and occasionally a brindle is seen. There is really no characteristctic color or arrangement of colors for the Ayrshire, but the prevailing color at present is white with brownish red spots, especially about the head and neck. Our red is called brown in Scotland.

Size. The scale of points for the Ayrshire cow states that mature cows should weigh from 1100 pounds to 1400 pounds depending on period of lactation. Bulls should weigh from 1700 to 2000 pounds at maturity, The value for weight as given on the score card is five points. Ayrshire calves rank next to Holstein calves in weight at birth and are very hardy and easily raised.

Form. Of all the dairy breeds none as a rule have more typical dairy forms than the Ayrshires although the Jersey as a breed shows more dairy temperament. The general form is wedge shape, which is made more noticeable vy the depth of body. In general structure the Ayrshire is rather fine boned and short legged. There is little coarseness about her, but the lines are smooth and rounded throughout. The breeds greatest fault in the minds of many dairymen is the extreme length of horns. These turn outward and upward and grow longer than on any of our other improved dairy breeds. The size and length of horns are considered a fancy point among Ayrshire breeders, especially those of Canada, but it is a point that many believe ought to be discouraged. She has a small bony sharply defined head, slightly dished face, and broad muzzle. Some breeders both here and abroad have dehorned their entire herds for economic and humane reasons, but the practice is not widespread. Some predict the horns will be bred smalled rather than removed. Scattered through the herds of several farmers in Rutland County, Vermont, are quite a number of pure bred Ayrshires that seem to be naturally polled.(1)

The new Ayrshire score card states that no penalty shall be imposed on an Ayrshire because she has been properly dehorned.

Disposition. Upon this point Doctor Sturtevant has said: - "The Ayrshire has a superabundance of nerves, she is ever ready to employ them upon demand in self defense or in self support; she asks little beyond a fair chance, yet all this nature in her is in reserve and she does not use it only to disqualify her to be the pet of the household."

(1) Breeders' Gazette, September 15, 1928

"She responds readily and appreciates good treatment. Her looks appeal to one's intelligence to accord it to her. Her natural nervous temperament makes her a good rustler and among all the dairy breeds she makes the best use of scanty pastures".

Constitutional Vigor. The rather severe climate and large amount of outdoor life in a rough country to which the Ayrshires were subjected during the hundred or more years of their developing period have given them a constitution, which is remarkable for strength and endurance. As a breed they are noted for their hardiness and ability to withstand the hardships of a cold climate or a pioneer country. They bid fair to retain their inherited vitality and strength unless weakened by pampering and confinement in poorly ventilated stables.

Milking Qualities. The quantity of milk given by Ayrshire cows under good conditions will average from 8,000 to 10,000 pounds a year per head. The Ayrshire breed has individuals which have made a large records for daily production, and it is not rare to find a cow giving sixty to seventy pounds of milk per day. Such yields, are, of course, from exceptionally good cows under the most favorable conditions. The largest milk record for the breed is held by Nellie Osborne of Elmshade 16th, with 27, 197.7 pounds. Her best days production was 98.15 pounds with an average of 90 pounds daily for two months.

The udder of the Ayrshire cow is generally considered more nearly perfect in form than the udder of any other breed of cattle. In fact, a well formed udder is looked upon by many as an Ayrshire characteristic. So highly do Ayrshire breeders regard the mammary development of their cows that 30 of the total 100 points of the Ayrshire score card are given to this portion of the animal. The udder is well rounded and extends well forward and is attached high behind. A serious fault at times is the shortness of the teats which renders milking difficult.

ADAPTABILITY

If there is any region where the Ayrshire will thrive better than other dairy breed, it is on broken and rugged pastures or where their forage is scattered sparsely over a wide range. Their ability to give better returns than other breeds under such conditions is due to the fact that by inheritance they are natural grazers. They can probably turn the coarse forage to better advantage than other breeds. Such considerations, however, should lead no farmer to think that they will not thrive proportionately better on good pasture and plenty of nourishing food in the stable. If the Ayrshire is to be improved in milking qualities, it can never be done by forcing her to live where other cows might starve. It must be done by giving her the best food and care obtainable, for which she will doubtless return a goodly income.

The Ayrshire has a claim for recognition from the dairymen who is marketing his milk to village or city customers for she gives a profitable yield and it contains enough solids and butterfat to meet ordinary market conditions. Milk containing four per cent. of fat is now considered to be about the ideal richness for daily household use. The Ayrshire seems able to meet this condition better than any of the othe major dairy breeds. With a medium butterfat content, small butterfat globules and soft curd, milk produced by Ayrshire cows should be very well adapted for the use of infants.

RELATION OF AGE TO BUTTERFAT TESTS(1)
Based on all Herd Test records reported in volumes 5,6 and 7 of the Ayrshire Record

Age	Number Records	Average % fat
2	1505	4.136
3	1725	4.116
4	1400	6.068
5	1089	4.008
6	856	3.985
7	594	3.975
8	467	3.942
9	208	3.941
10	244	3.902
11	175	3.864
12	109	3.881
13	62	3.814
14	23	3.846
15	6	4.042
16	3	3.920
17	1	3.940
Average	8568	4.042

The figures show that the Ayrshire cow produces milk which averages slightly over four per cent, the quite general accepted standard for the butterfat content of market milk.

ADVANCED REGISTRY

In 1902 due to the splendid results obtained by the Home Dairy Test, the American Ayrshire Breeders inaugurated a system of officially testing registered cows, and under the "Advanced Registry" system the breed has made remarkable strides.

The Advanced Registry at the outset was hardly a success, because the majority of breeders knew their cows to be profitable under their conditions, and had no ambition to make large records. However, a 10,000 cow bobbed up now and then under ordinary farm care and breeders began to realize the possibilities of the Ayrshire. Wealthy men with a love for good cattle began to take an interest in the breed because of its beauty and attractiveness and the work of testing was started in earnest.

The first cow to be officially tested and receive a certificate was Rena Myrtle in 1896, owned by the Vermont State Agricultural Experiment Station. She made a record of 12,172 pounds milk testing 3.84 per cent fat.

On January 11, 1927, the Ayrshire Breeders' Association eliminated from its Advanced Registry, the 365 day test.

In June 1932, the 365 day test was again recognized with mature requirements of 12,000 pounds of milk and 480 pounds of butterfat and proportionate allowances for age. This would mean a difference of 100 pounds of milk and 4 pounds of butterfat per month. There are no calving requirements in the long time test. The average of the 6949 yearly records completed up to 1933 is 10,194 pounds of milk and 413 pounds of butterfat with an average test of 4.06%.

ADVANCED REGISTRY ROLL OF HONOR

The other semi-official class which is now recognized is the Roll of Honor or 305 day class which requires that a living calf be dropped

(1) Ayrshire Digest, January 15, 1933

within 300 days of the starting date of the test. Up to 1933,1714 records have been completed. These average 10,445 pounds of milk containing 420.4 pounds of butterfat with a test of 4.03 per cent.

ROLL OF HONOR

Length of test	305 days	
Requirements	Lbs. Milk	Lbs. Fat
AA Mature	10,000	400
BB Sr. 4	9,400	376
CC Jr. 4	8,800	352
DD Sr. 3	8,200	328
EE Jr. 3	7,600	304
FF Sr. 2	7,000	280
GG Jr. 2	6,400	256

Increase per month up to maturity — 100 lbs. milk and 4 lbs. butterfat

Calving Requirements — Drop living calf 400 days after date tests start.

Points Awarded — One point for each 25 lbs. milk and one point for each pound of butter. This is figured as follows:

Milk divided by 25 plus fat production. Therefore a 20,000 lbs. milk record with 800 pounds of fat would be calculated by dividing 20,000 by 25 and adding the result, 800 to the 800 points for fat which would equal 1600 points.

French Cup Award — The cow in each class of the Roll of Honor having the highest number of credit points for milk and butterfat production in each year shall be awarded a French Prize Cup.

Gold and Silver Medals — A Gold Medal is awarded each cow in each class which shall receive a certain number of credi points. For example if a matur cow shall equal or exceed 1500 points for production she is entitled to a gold medal.

A Silver Medal is awarded for each class to the cow in each state each year which shall have the highest credit in points for amount of milk and butterfat production.

AYRSHIRE HERD TEST

A Herd Test Plan was established in July 1925 by the Ayrshire Breeders' Association. This was the first association to adopt such a testing plan.

Every registered Ayrshire cow in the herd must be tested when the herd is entered under this plan but the testing of grades is optional.

Another interesting feature of the Herd Test plan is that it may be combined with Dairy Herd Improvement Association work with marked savings in cost. It may also be combined with semi-official Advanced Registry testing.

This method of determining the productive ability of Ayrshire cows should give a very accurate record of what can be expected of Ayrshires under normal farm conditions.

Sixty-five herds, including over 2000 cows, completed Herd Test records, during 1932, with a production average of 8389 pounds of 4.11 per cent milk and 345 pounds of butterfat.

FAMILIES

Naturally because the Ayrshires belong to a young breed of dairy cattle there are but few prominent families. One of the more noted families is descended from Rena Ross through her five daughters. The Finlayston family from Imported Finlayston has furnished many noted animals. It is interesting to note that the five daughters of Rena Ross are all full sisters being sired by Imported Finlayston. Jean Armour and Auchenbrain White Beauty 2d are other Ayrshire cows which have established noted families.

Other strains or families which take their names from noted individuals are Man O'War, May Mischief, Leto, Peter Pan, Netherton Statesman and Brown Kate.

Ayrshire Auction Sales

Year	Number Sold	Average
1918	444	$256.12
1919	559	386.80
1920	224	359.73
1921	537	282.03
1922	367	203.90
1923	236	193.94
1924	144	160.15
1925	586	255.57
1926	282	179.70
1927	286	244.20
1928	764	184.57
1929	527	251.00
1930	549	190.00
1931*	752	120.00

*Figures for last four years secured from Advanced Registry Offic.

HIGHEST SUCCESSIVE RECORDS MADE BY AYRSHIRE COWS

Among the notable records made since Rena Myrtle made her record in 1896 are the following:

Year	Name	Lbs. Milk	Lbs. fat
1896	Rena Myrtle 9530 Vermont Agri. Expt. Station	12,172	467.9
1905	Polly Puss 16296 John R. Valentine, Bryn Mawr, Pa.	12,632	501.0
1907	Rena Ross 14539 John R. Valentine, Bryn Mawr, Pa.	15,072	642.8
1910	Netherhall Brownie 9th 23985 J. W. Clise, Redmond, Wash.	18,110	820.9
1911	Jean Armour 25487 Mrs. F.D. Erhardt, West Berlin, Vt.	20,174	774.7
1912	Geranton Dora 2d 23853 J.W. Clise, Redmond, Wash.	21,023	804.7
1912	Lily of Willowmoor 22269 J. W. Clise, Redmond, Wash.	22,106	888.7
1912	Auchenbrain Brown Kate 4th 27943 Penshurst Farm, Narberth, Pa.	23,022	917.6
1914	Garclaugh May Mischief 27944 Penshurst Farm, Narbert, Pa.	25,329	894.9
1914	Lily of Willowmoor 22269 J. W. Clise, Redmond, Wash.	22,596	955.5
1926	Nellie Osborne of Elm Shade 16th 71910	23,223	1003.0
1926	Vis Nountiful Lassie 58096 State Industrial School, Vergennes, Vt.	24,556	923.2
1928	Nellie Osborne of Elmshade 16th, 71910	27,197	1257.2

From the above table it will be seen that both the milk and butterfat world's records are held by the Canadian cow, Nellie Osborne of Elm Shade 16th.

NOTED AYRSHIRES

Sponsored by the Ayrshire Breeders' Association certificates are now being awarded to the owners of cows which in a life time have produced 100,000 pounds of milk or 4000 pounds of butterfat.

Heading this list of cows in the 1000 pound Ayrshire Club stands Mistress Thistle of South Farm 49818 with ten records totaling 141,351 pounds of milk and 4917 pounds of butterfat. She is owned by Sycamore Farms, located at Douglassville, Pa.

Barr Dairy Queen, oldest daughter of Dalgig Speculation 36062, imp., owned by Strathglass Farm, Port Chester, New York, is one of the best examples of a combination of type and production. As a two year old she has a herd test record of 10,189 pounds of milk and 462 pounds of butterfat.

Penshurst Rising Star 20922 at seventeen years of age is still in service at Glen Foord Farm, Torresdale, Pa., Among his 81 tested daughters are Penshurst Nancy Star, a world's record two year old and three French Prize Cup winners. One of these, Penstate Marian, owned by The Pennsylvania State College, produced 14,622 pounds of milk and 639 pounds of butterfat as a two year old and then repeated with 18,926 pounds of milk and 824 pounds of butterfat as a four year old. She was also good enough in conformation to win several show ring prizes including a first in the Advanced Registry class at the Eastern States Exposition.

1000POUND FAT PRODUCERS

There are only two Ayrshire cows with yearly records of 1000 pounds of butterfat and all of these cows are owned in Canada.

	Age	Lbs. Milk	Lbs. Fat
Nellie Osborne of Elmshade 16th	7	23,223	1003.0
	9	27,198	1257.0
Betsy Wylie	6	21,805	1103.0

GRAND CHAMPION AYRSHIRE COWS AT NATIONAL DAIRY SHOWS

1907	Croftjane Dianah 19th	W.P. Shank, N.Y.
1908	No Ayrshires shown due to quarantine in Pa. and New York	
1909	Boghall Snowdrop	J.F. Converse & Co., N.Y.
1910	Boghall Snowdrop 2d	L.A. Reymann, Wheeling, W.Va.
1911	Oldhall Ladysmith 4th	Pyanogue Farm, Brewster, N.Y.
1912	Aikenhead White Legs 4th	Barclay Farms, Rosemont, Pa.
1913	Kilnford Belle 3rd	Adam Seitz, Waukesha, Wis.
1914	Kilnford Belle 3rd	Adam Seitz, Waukesha, Wis.
1916	Auchenbrain Hattie 6th	Iroquois Farm, Cooperstown, N.Y.
1917	Shewalton Main's Queen	Strathglass Farm, Port Chester,N.Y.
1918	Harleyholm White Rosie 3rd	R. R. Ness & Sons, Howick, Quebec
1919	Cavalier's Kilnford Belle 3d	Adam Seitz, Waukesha, Wis.
1920	Barclay's Nightingale	Adam Seitz, Waukesha, Wis.
1921	Barboigh Primrose 2nd	Alta Crest Farm, Spencer, Mass.
1922	Carston Bridesmaid	Edgerstoune Farm, Concord,N.H.
1923	Palmerston Hyacinth 8th	E.C. Budge, Montreal, Canada
1924	South Farm Helen R.	Adam Seitz, Waukesha, Wis.
1925	Holehouse Buttercup	Alta Crest Farms, Spencer,Mass.
1926	Penshurst Jesabel	James E. Davidson, Ithaca,Mich.
1927	Great Cross Snow Flake	Strathglass Farm, Port Chester,N.Y.
1928	Cacapon Lass	Fairfield Farm, Topeka, Kans.
1929	Iroquois Sally Winters	Lippitt Farm, Providence, R.I.
1930	Third Part Madge 4th	Sycamore Farm, Douglassville,Pa.
1931	Byreholm Grace	Sycamore Farm, Douglassville,Pa.
1932	No Show	

GRAND CHAMPION AYRSHIRE BULLS AT NATIONAL DAIRY SHOWS

1907	Barcheskie Kings Own	R. R. Ness, Quebec
1908	No Ayrshires shown due to quarantine in Penna. and New York	
1909	Howie's Fisszway	J. F. Converse & Co., N.Y.
1910	Nethercraig Caruso	L. A. Reymann, Wheeling, W.Va.
1911	Beuchan Peter Pan	J. W. Clise, Redmond, Wash.
1912	Bargenoch Gay Cavalier	Adam Seitz, Waukesha, Wis.
1913	Bargenoch Gay Cavalier	Adam Seitz, Waukesha, Wis.
1914	Hobsland Perfect Piece	Strathglass Farm, Port Chester,N.Y.
1916	Strathglass Cold Chink	John A. Ness, Auburn,Maine
1917	Cavalier's Lord Stuart	Adam Seitz, Waukesha, Wis.
1918	Nancy's Mintmaster	Wendover Farm, Bernardsville,N.J.
1919	Admiral Beatty of Wendover	Wendover Farm, Bernardsville,N.J.
1920	Morton Mains Lord Barrylyndon	Alta Crest Farm, Spencer, Mass.
1921	Duchrae Grandee	Alta Crest Farm, Spencer, Mass.
1922	Howie's King of Hearts	Adam Seitz, Waukesha, Wis.
1923	Hobsland Lucky Star	Strathglass Farm, Port Chester, N.Y
1924	Strathglass Roamer	Barclay Farms, Rosemont, Pa.
1925	Strathglass Roamer	James E. Davidson, Ithaca, Mich.
1926	Strathglass Roamer	James E. Davidson, Ithaca, Mich.
1927	Hobsland White King	Strathglass Farm, Port Chester,N.Y.
1928	Alta Crest Ringleader	Alta Crest Farm, Spencer, Mass.
1929	Alta Crest Ringleader	Alta Crest Farm, Spencer, Mass.
1930	Willoxton Satisfaction	Alta Crest Farm, Spencer, Mass.
1931	Strathglass Dalbar	Sycamore Farms, Douglassville,Pa.
1932 and 1933	No Show	

REFERENCES

Training Ayrshire Horns - Ayrshire Digest, April, 15, 1933

Auchenbrain White Beauty 2d 21687 - Ayrshire Digest, Dec. 15, 1926

Ayrshire Udders - Ayrshire Digest, March 15, 1932

A Study of Ayrshire Heads - Ayrshire Digest, May 15, 1932

A Study of the Rear Quarters of the Ayrshire - Ayrshire Digest, April 15, 1932

The 1000 Pound Ayrshire Club - Ayrshire Digest , June 15, 1933

The Typical Ayrshire Cow - Ayrshire Digest, December 15,1926

What I have learned about Ayrshire Records - Ayrshire Digest, October 15, 1932 ans November 15, 19

CHAPTER IX

BROWN SWISS CATTLE

ORIGIN

There are two major breeds of cattle in Switzerland, one the Braunvieh or Schwyz known as Brown Swiss in America and the other the Simmental or Fleckvieh, which is the more common of the two. The Brown Swiss is probably the oldest breed of cattle in existence as they have been bred in the same locality since pre-historic times. Bones found in the ruins of the Swiss Lake Dwellers, which date back to the Bronz Age, show a type of cattle from which the present Brown Swiss have evidently descended. Their origin is unknown, but it is believed that the breed originally came from the Orient. Early records indicate that they were introduced into Europe about the time the Huns overran Europe and sacked Rome. A third breed somewhat related to the Simmental is the Fribourg, black and white in color and similar in size to the Brown Swiss.

The cattle during the winter time are housed in warm but rather dark and unsanitary barns. During this season they are fed largely upon hay to which is added aromatic herbs as it is though that the flavor of the cheese can be influenced in this way. In addition, potatoes, turnips and a small amount of oil meal may be fed in very small amounts. As early as possible in the spring the cattle are turned out on pasture on the lower levels and as the season advances the cows are driven to higher pastures. The grass is kept green throughout the season by the melting snow. The milk is made up into butter and cheese in the summer time because of the difficulty of transporting milk from the mountain pastures.

There are in Switzerland about 244,000 farms of which 41 per cent have an area from 1½ to 7½ acres. Only one per cent of the farms have over 175 acres. One cow is kept on two acres on the average, which shows how intensively the land is cultivated. The herds average about 5 cows per farm with the necessary young stock. Bulls are kept on the large farms only and are usually owned co-operatively.

IMPORTATIONS

Credit is given to Henry M. Clark, of Belmont, Massachusetts, for having first introduced this breed into the United States in 1869. Records show that this first importation of seven families and one bull had increased to about 200 head within a period of twelve years. Their popularity lead to further importations in 1882 and later, but due to an embargo placed on cattle from Switzerland because of the prevalence of foot and mouth disease in Europe, comparatively few animals have been brought to this country. Because the Brown Swiss became so popular in Mexico, South America and Russia for use as draft animals the Swiss Government passed laws to prevent the sale of the best animals to exporters. In all, probably not more than 200 Brown Swiss were brought to the United States from Switzerland and from this number over 60,000 purebreds had been registered up to 1930.

DEVELOPMENT IN THE UNITED STATES

The Brown Swiss Cattle Breeder's Association was organized September 8, 1880, in Worcester, Massachusetts, and was incorporated under the laws of Wisconsin as The Brown Swiss Cattle Breeder's

Association of the United States of America, September 19, 1925, at Beloit, Wisconsin.

The Office of the secretary, Ira Inman, is located at Beloit, Wisconsin which is also the address of "The Brown Swiss Bulletin" a magazine published by the Brown Swiss Cattle Breeders' Association.

The leading states for Swiss cattle are Wisconsin, Illinois, Iowa, Minnesota, New York, Michigan, Ohio and Pennsylvania.

CHARACTERISTICS

The Brown Swiss is one of the heaviest of the dairy breeds and the calves at birth weigh from 80 to 100 pounds. The cows range from 1200 to 1400 pounds in weight and the bulls should weigh from 1800 to 2200 pounds at maturity. Swiss cattle are rather heavy boned and tend to be a little coarse in general make-up. Their top-line is usually straight, their bodies deep and their briskets rather full and prominent. The head is broad and may seem rather plain while the broad muzzle indicates a good feeding ability. The color of animals of this breed varies from a light or silvery gray to a dark brown or almost black. The hair is unusually thick and fine. The nose, switch, tongue and horn tips are black. A light stripe is often found along the back bone and the muzzle is surrounded by a yellowish colored ring.

"No animals can be registered with the Brown Swiss Cattle Breeders' Association having broken color or white spots. The color must be solid above a line beginning at the center of the knee cap and going to a point at the center of the shoulder joint, thence back along the line of the body where the hair grows back and meets the hair growing forward, thence following the cord line to the center of the stifle joint, thence down to the center of the hock joint. No white spots to be in the switch." (1)

Because of the general fleshiness of the breed they were considered as dual purpose animals until 1908 when the Brown Swiss Association classified their cattle as a strictly dairy breed. Since then Brown Swiss breeders have been giving particular attention to the development of the mammary system and the refining of the breed toward the dairy type. Because of rather heavy thighs many Brown Swiss cows do not show rear udder development as high and wide as do cows of other dairy breeds. Heifers of this bred are a little slower in maturing than are Holstein heifers.

Swiss cattle are docile and easily managed and they tend to take on fat readily when dry. Cows of this breed produce milk with an average test of 4 per cent butterfat.

ADAPTABILITY

In Switzerland, South Germany and some other countries, Brown Swiss cattle and more particularly the Simmentals are used for milk production and meat production and in some cases for draft purposes. In the United States the main purpose of the breed is for milk production. They are quite well adapted to the production of market milk and they seem to thrive where the greatest care cannot be given to the animals. Brown Swiss calves rank first among the dairy breeds in the production of veal.

(1) Application for Registration Blank.

HISTORY IN PENNSYLVANIA

C. D. Marshall, Pittsburgh, Pennsylvania, owned for a number of years what was supposed to be the oldest Swiss herd in Pennsylvania. His herd located at Pottstown was also the largest herd of Swiss cattle in the state. In 1925 the herd was sold because of the large number of reactors to the tuberculin test.

Another early breeder of Swiss cattle is John S. Wohlwend, of Salina, Westmoreland County, who secured his foundation stock in Iowa in 1904. The herd is now managed by Miss Irma Wohlwend.
Mary Dysart 6791, owned by The Pennsylvania State College stands first in production among Pennsylvania Swiss cows. In 1916 she was purchased as a heifer from Blair B. Hileman of Altoona. At the age of four years she was second in her class with a production of 14,628 pounds of milk and 616.7 pounds of butterfat. As a five year old she made the third highest record for mature cows of the entire breed - 754.21 pounds of butterfat and 16,137.3 pounds of milk. Five years later at the age of ten years she completed a yearly test of 16,861.5 pounds of milk and 804.05 pounds of fat and became the second highest producer of the breed.

REGISTER OF PRODUCTION

Yearly Test

The Register of Production was established in May 1911 with both milk and butterfat requirements. Any cow commencing her test at the age of two years and six months or younger must produce not less than 250.5 pounds of butterfat in 365 days. For each day the cow is over two years and six months old at the beginning of the test, one tenth of a pound of butterfat shall be added to the requirements. This ratio shall apply until the cow is five years and six months of age when the amount required will have reached 360 pounds of butterfat. Because the Brown Swiss are slower in maturing as compared with the other dairy breeds the entrance age is two years six months rather than two years and maturity is reached at six years of age instead of five years.

In the yearly division 639 records had been completed up to July 1, 1932. These records averaged 13515.5 pounds of milk and 540.2 pounds of butterfat.

The Farmers' Class

A cow calving on or before the date she is two years and six months old shall produce during that period of lactation, and within a period of 305 consecutive days, not less than 220.5 pounds of butterfat, with the additional requirement of a fully matured calf within fourteen months from the birth of last previous calf, and for each day the cow may exceed two years and six months of age, at the beginning of test, requirement of butterfat shall be increased one-tenth of a pound of fat.

This increased requirement of one-tenth of a pound of fat daily fo each day's increase in age shall continue until the requirement reaches 330 pounds of fat, after which no further increase shall be required.

In the Farmers' Class 183 cows have an average production of 11,507.3 pounds of milk and 460.8 pounds of butterfat.

TEN HIGHEST BROWN SWISS RECORDS

Nme and Owner	Lbs. Milk	Lbs. Fat
Swiss Valley Girl 10th 7887 (1) Hull Bros., Painesville, Ohio	27,513.6	1,106.33
June's College Girl, 11427 (2) Dr. C.F. Osborne, Hampton, Iowa	24,571.6	1,062.3
June's College Girl, 11427 Walhalla Farm, Rexford, N.Y.	24,167.4	1,043.0
Greenwood Valley Lass 18823 W. W. Kincaid, Youngston, N.Y.	21,924.9	1,037.1
Swiss Girl, F.C. 13853 (2) Dr. C.F. Osborne, Hampton, Iowa	23,235.8	1,003.76
Believe, 4245 (3) F.P.Minette & Son, Sauk Center, Minn.	25,847.8	1,002.62
Forest Firl of Lake View 11998 Walhalla Farm, Rexford, N.Y.	23,556.2	971.3
Clepe E 14082 A Lilly La Cresent, Minn.	24,225.8	969.3
Millicent of Walhalla 11178 Walhalla Farm, Rexford, N.Y.	22,080.1	961.5
Cinderella Cream 13625 Fred O8Donnell, Lone Rock, Wis.	23,186.1	957.6

(1) Record completed April 15, 1929 at age of 13 years 4 months
(2) These cows were sold at auction in June 1928 to Walhalla Farms, Schenectady, N.Y. June's College Girl brought $3250 and Swiss Girl $5400.00.
(3) Age 13 years 6 months at start of test.

GRAND CHAMPION BROWN SWISS COWS AT NATIONAL DAIRY SHOWS

1907	Folie	F. R. Hazard, Syracuse, N.Y.
1908	Cuma	H. W. Ayers, Wisconsin
1909	Iown Lassie	E. M. Barton, Hinsdale, Ill.
1910	Iown Lassie	E. M. Barton, Hinsdale, Ill.
1911	Bettie of Allynhurst	J. P. Allyn, Wisconsin
1912	My One Baby 3378	J. P. Allyn, Delaven, Wisconsin
1913	Belle of Gratton, 5744	J. P. Allyh, Delaven, Wisconsin
1914	Arlene, 2769	J. P. Allyn, Delaven, Wisconsin
1916	Vera of Lake View, 7888	Hull Bros, Painesville, Ohio
1917	Swiss Valley Girl 7th, 4678	Hull Bros., Painesville, Ohio
1918	Reuben's Ruth, 8183	Hull Bros., Painesville, Ohio
1919	Betty of Lake View, 8479	A. E. Bower & Son, Bushton, Ill.
1920	Betty of Lake View, 8479	A. E. Bower & Son, Bushton, Ill.
1921	Swiss Valley Girl 7th, 4678	Hull Bros., Painesville, Ohio
1922	Swiss Valley Girl 7th, 4678	Hull Bros., Painesville, Ohio
1923	Swiss Valley Girl 7th, 4678	Hull Bros., Painesville, Ohio
1924	Swiss Valley Girl 7th, 4678	Hull Bros., Painesville, Ohio
1925	Cinnamon's Maiden 12764	N.C. Schmid, Monroe, Wisconsin
1926	Brown Baby of Allynhurst 10962	Mooney & Larrabee, Ft. Dodge, La.
1927	June'College Girl, 11427	Iowa Brown Swiss Co., Hampton, Ia.
1928	Silver Bell, 9322	J. Frank Zoller, Schanectady, N.Y.
1929	King's Pebblebrook Phylis Pansy 20002	Hull Bros., Painesville, Ohio.
1930	King's Pebblebrook Phylis Pansy 20002	Hull Bros., Painesville, Ohio
1931	King's Pebblebrook Phylis Pansy 20002	J. Frank Zoller, Schnectady, N.Y.
1932	No Show	

GRAND CHAMPION BROWN SWISS BULLS AT NATIONAL DAIRY SHOWS

1907	Junker	E.M. Barton, Hinsdale, Illinois
1908	Junker	E. M. Barton,Hinsdale, Illinois
1909	Junker	E.M. Barton, Hinsdale, Illinois
1910	Junker	E.M. Barton, Hinsdale, Illinois
1911	Zell	H.W. Ayers, Wisconsin
1912	Faust, 2368	E. M. Barton, Hinsdale, Illinois
1913	My One Boy, 3120	J.P. Allyn, Delaven, Wisconsin
1914	My One Boy, 3120	J.P. Allyn, Delaven, Wisconsin
1916	Merney's 2nd Son, 3280	H.W. Ayers, Honey Creek, Wis.
1917	Stasis' Boy of Sedgeley 3836	L.S. Marshall & Sons, Leslie,Mich.
1918	Stasis' Boy of Sedgeley 3836	L.S. Marshall & Sons, Leslie,Mich.
1919	Gallatin Brownie, 6002	Hull Bros., Painesville, Ohio
1920	Vogel's College Boy 5638	Hull Bros., Painesville, Ohio
1921	Nellie's Stasis, 6721	L.S. Marshall & Sons, Leslie, Mic
1922	Nellie's Stasis, 6721	L.S. Marshall & Sons, Leslie, Mic
1923	Jubilee Medor 8984	Jubilee Farm, Peoria, Illinois
1924	Prince of Meadow Green 9427	L.S. Marshall & Sons, Leslie,Mich.
1925	Ursula's Stasis 10719	Hull Bros., Painesville, Ohio
1926	Swiss Valley Girl 7th College Boy 12656	Hull Bros., Painesville, Ohio
1927	Maiden's Vronicka's College Boy 11393	J. Frank Zoller, Schenectady, N.Y.
1928	Maiden's Vronicka's College Boy 11393	J. Frank Zoller, Schenectady,N.Y.
1929	Suydam's Nero 15599	J. Frank Zoller, Schenectady, N.Y.
1930	March Molly 3rd's Master 14350	J. P. Allyn, Delaven, Wisconsin
1931	Beauty's Carl of Meadow Green	J. P. Allyn, Delaven, Wisconsin
1932	No Show	

REFERENCES

Eno, Robert W. Swiss Herds Expanding in the East, Brown Swiss Bulletin October 1926

Review of Breed History, Brown Swiss Bulletin, July 1926.

History of Brown Swiss, Hoard's Dairyman, February 10, 1927

History of Brown Swiss, Dairymen's League News, July 15, 1927.

Pirtle, T.R. History of Dairying, page 38

The Swiss Record, Volume 1, page 126, History and Reports of Swiss Cattle.

Sanders, A.H. The Taurine World, The National Georgraphic Magazine, December 1925

CHAPTER X

MINOR DAIRY BREEDS

DUTCH BELTED CATTLE

Dutch Belted Cattle are one of the minor dairy breeds. Their native home is in Holland, where they are known as Lakenfields, which means literally a field of white, but conveys the idea of a white body with black ends.(1)

HISTORY IN HOLLAND

The early history of this breed is not fully understood, but from the records obtainable, it seems that these cattle began to flourish about 1750, and no doubt the system of selection by which this marvelous color breeding was attained, dates back into the sixteenth century. Evidence indicates that there were gentlemen of wealth and leisure near what is now call Haarlam, North Holland, who conceived the idea of breeding animals of all kinds to a certain color, chiefly with a broad band of white in the center of the body, with black ends. These noblemen had large estates and it is said that for more than 100 years they and their descendants worked on the perfection of these peculiar color-markings until they produced belted cattle, pigs and poultry. That these breeders were wonderfully successful, no one questions, as we have the results of their labors in the Dutch Belted cattle, Lakenvelder poultry of England, and Americ, the Lanche-swine of Holland and Germany and the Hampshire swine of America, which were supposed to originate in Hampshire, England but undoubtedly are the descendants of the Haarlem herds of lang ago. All of these breeds possess a belt, and carry out the idea of their originators in a marvelous degree.

HISTORY IN AMERICA

Dutch Belted cattle were first imported to America in 1838 by D.H. Haight. He made his first importation in 1838, and a later one in 1848. His herd became scattered over Orange County, New York, until one will find a great many belted cows in every township in that county today. Robert W. Colman also imported a large herd to place on his estate at Cornwall, Pennsylvania. The Dutch Belted cattle in America today are nearly all descended from these herds. In 1840 P.T. Barnum imported a number of Dutch Belted cattle for show purposes, but shortly placed them on his farm in Orange County, New York. One heifer was imported in 1906 by H. W. Lance, of New York City, for his farm in New Jersey, but previous to that time none were brought over for more than fifty years. The total number imported from 1885 to 1920 amounted to only 69 head. This was due chiefly to the very great difficulty in securing them and to the restriction against importing them. A number have been exported from this country to Canada and Mexico, and a few to Cuba. In 1893 H.B. Richards, secretary of the Dutch Belted Cattle Association, sold his World's Fair herd, numbering 16 and 9 others to a son-in-law of President Diaz and shipped them to Mexico. Later, Richards sold twenty to Sir William Van Horne, of Canada. Other exportations have been made to England, Argentine, Hawaiian Islands and Brazil. There were about 6000 purebreds and 150,000 grades in the United States in 1920.

(1)Dutch Belted Cattle Bulletin, April 1916

DESCRIPTION

In size these cattle rank with the Ayrshires and are also much the same in general conformation, being, if anything, a little larger, and having a little more length or leg. Cows range from 900 to 1300 pounds in weight. Bulls often weigh 2000 pounds. The best types of the breed represent a highly developed dairy form, having thin necks, small heads, straight backs, deep chests, hips and rumps high and broad, udders and milk veins well developed, and with all a high nervous temperament. They are very quiet in disposition. The most distinctive feature of this breed is the pure white belt. This belt, when ideal, should be a little back of the shoulder, and a little in front of the hips, and should extend entirely around the body in a line-like appearance. The body is coal black, and these combinations of color, so evenly blended, make the breed very conspicuous and attractive in appearance.

ORGANIZATIONS AND RECORDS

The Dutch Belted Cattle Association of America was organized February 4, 1886, in New York City, and is the only organization promoting the breed in America. In 1909 the Association was incorporated in New Jersey and twelve volumes of the herd book has been published.

The average production of all cows with yearly records up to January 1, 1931 is 10,591 pounds of milk with a test of 3.9 per cent fat. In 1927 there were active breeders in twenty-nine states, with New York and New Jersey leading. Orange County, New York, was the early breeding center of the breed.

The Dutch Belted cattle are recognized by the Dairy Science Association as a strictly dairy breed. In 1920 the Association formed an Advanced Registry department with records based on two milkings per day. The breed recognizes two champions, one for milk and the other for butterfat.

Both of these records are held by one cow, Loraine of Brunswick owned by Valley Farm, Brunswick, Maine. She produced 18,211 pounds of milk and 816.5 pounds of butterfat. Former record holders were Gem of Columbia 2038 owned by Dr. J. G. DuPuis, Lemon City, Florida, with a production of 17,125 pounds of milk and 625 pounds of butterfat, and Angelina 2641 owned by O.A. Leonard, Rockville, Conn. which produced 16,022 pounds of milk and 668 pounds of butterfat.

FRENCH CANADIAN

This breed is the only one which can claim America as its home, although the original stock came from Normandy and Brittany some time about 1620. These animals were first brought over from Northern France by the early settlers to the province of Quebec.

Because of the severe climate and not too abundant feed the breed has developed wonderful hardihood and health with a fair ability for milk production.

It is especially well adapted to its present home and the interests of the breed have been cared for by the French Canadian Cattle Breeders Association since 1895. In 1886 the Quebec Legislature adopted rules governing the registration of foundation animals because it was realized that the breed was exceptionally well adapted to the province of Quebec. Modern development of the breed began about 1880.

CHARACTERISTICS

In size the French Canadian is about that of the Jersey and although it resembles the Jersey somewhat it is coarserand lacks the finish found in the Jersey Breed. In color they range from a dark brown to a black. The calves of this breed are very hardy and easily raised, but are slow in reaching maturity. The milk production is lower than the Jerseys with 5000 to 6000 pounds of milk testing about 5 per cent. The Record of Performance was established in 1907. The requirements for the two year old class are 4,400 pounds of milk and 193 pounds of butterfat increasing to 6,800 pounds of milk and 306 pounds of butterfat for mature cows. The highest record is held by Finette with a production of 16,845 pounds of milk and 895 pounds of butterfat with a butterfat test of 5.35%. She is owned by A. N. LaBrie, Quebec.

KERRY

The Kerry is the smallest breed of cattle used for milk production It is native of southwest Ireland where it has been bred for centuries and prior to the eighth century was the only breed of cattle in Ireland Their weight ranges from 750 to 850 pounds and in color is either red or black. The average yield of a Kerry cow is around 6,000 pounds of milk with an average test of 4 per cent. Another type of the Kerry known as Dexter Kerry resulted from crossing Kerrys and Devons. The Dexter Kerry cattle are a little larger in size and lack the refinement of the Kerrys.

Some of the Kerrys have very large records. In 1921, Duv Time, weighing only 784 pounds produced 46.6 pounds of milk in 24 hours. Her test was 5.14 per cent. In 42 weeks her record was 10,425 pounds of 4.04 per cent milk.

Another cow, Gort Curley 4th, produced 11,388 pounds of milk in one year. As her weight was 868 pounds she gave more than 13 times her own weight in milk in 52 weeks.(1)

C.S. Plumb, Columbuc, Ohio, is secretary of the American Kerry and Dexter cattle club. Only a few animals of this breed have been imported into this country and their distribution is very limited.

POLLED JERSEYS

This breed originated in Ohio where a few breeders wished to develop cattle with Jersey characteristics but without horns. In establishing this breed it was necessary to use animals of other breeds in order to combine the polled characteristic with the common Jersey characteristics. For this reason the Polled Jersey cattle club have both "single standard" and "double standard" animals. The double standard animals are eligible to registry in the American Jersey Cattle Club Herd Register and Register of Merit as well as the Polled Jersey Herd Register. A separate Register of Merit for Polled Jerseys is not maintained. The single standard animals are comparatively few in number, only 8½ per cent of the animals recorded to date belong to this class and are not eligible for registry in the American Jersey Cattle Club Herd Register.

Less than 2000 animals are recorded and their distribution is largely in Illinois, Ohio and Indiana. The limiting factor at present is the small number of pure polled sires available for breeding purposes.

(1) Pirtle, History of the Dairy Industry

The double standard animals will resemble the Jersey in Characteristics while in the single standard animals other characteristics may be present depending upon the amount of outside blood used in the development.

POLLED HOLSTEINS

There was one noted herd of Polled Holsteins owned by George L. Stevenson, Clarks Summit, Pa. A large number of animals were sold from this herd, but as yet the breeding of Polled Holsteins is very limited in extent. The herd was started in 1911 with the purchase of a pure bred polled Holstein bull.

The most noted Polled Holstein cow is Keystone Beauty Plum Johanna which on official test produced 25,787 pounds of milk and 1,035.8 pounds of butterfat as a Senior four year old, holding the world's record in this class.

CHAPTER XI

DUAL PURPOSE CATTLE

The term "Dual purpose" is applied to cattle which are bred for milk and meat production in contrast to single purpose cattle which are bred for but one of these purposes. The difference is largely one of degree for all dairy cattle may be used for meat production and females of the beef breeds produce milk in varying amounts.

This term cannot be applied to a member of the dairy breeds which lacking in dairy temperament is sold for beef nor should it be applied to a Shorthorn cow or a female of any of the beef breeds just because she happened to inherit a strong characteristic for milk production which is antagonistic to the production of body fat for which the beef breeds are noted.

The dual purpose, double decker or double standard cow is supposed to stand midway between the extremes of dairy type and Beef type. She should be a cow which would produce a medium amount of milk and lay on flesh rapidly when dry and also whose milking and meat qualities are so fixed, that they would be transmitted with reasonable certainty. In order to properly classify dual purpose animals there should be if possible a standard for both milk and beef production. Whether or not a farmer should breed special purpose or dual purpose cattle is an open question. A few points may be eliminated about which there is no dispute.

1. Cows of the special dairy breeds as a breed will produce milk and butterfat more profitably than those of the dual purpose type and the Beef breeds will excel the dual purpose breeds in beef production.

2. The man who intends to make either dairying or beef production his main business should choose the breed which has been especially developed for that purpose for the highest development of both milk and meat production cannot be combined in the same animal.

THE MILKING SHORTHORN

The Milking Shorthorn has the same origin as the Shorthorn breed which is noted for beef production. It is believed by some and disputed by others that bulls from Holland were used in the development of the modern Shorthorn. The dual purpose Shorthorn was first bred by Thomas Bates toward the latter part of the eighteenth century, although those bred by the Colling Brothers were generally good milkers.

ADVANCED REGISTRY

In order to promote the interests of the milking Shorthorn a Record of Merit was established in 1915 and in 1920 the Milking Shorthorn Society was started with offices at Independence, Iowa. (1)

The rules require that to be admitted to the Record of Merit cows must yield from 5,250 pounds of milk containing 210 pounds of fat when starting the test at 30 months of age, up to 8,000 pounds of milk containing 300 pounds of fat as mature cows, five years of age or over.

Some very good records have been made including those made by Rose of Glenside with a production of 18,075 pounds of milk containing 625 pounds of butterfat and Doris Clay with 17,241 pounds of milk containing 654 pounds of butterfat. Both of these cows came from Glenside Herd, Granville Center, Pennsylvania.

The highest record for this breed is held by Melba 15th of Darabalara owned by Scottish Australian Investment Co., New South Wales, Australia. As a four year old she produced 21,635 pounds of milk con-

(1) Vol. 5, Milking Shorthorn Year Book.

taining 945 pounds of butterfat. Her mature records are 29,423 pounds of milk and 1,316 pounds of butterfat and 32,522 pounds of milk containing 1,614 pounds of butterfat.(1)
Her dam made 17,364 pounds of milk and 830 pounds of fat and her grandam 11,763 pounds of milk containing 495 pounds of fat. These records substantiate the satements made by Australian breeders that their milking shorthorns are not dual purpose cows but single purpose cows being bred entirely for milk production.(2)

The average production of 2,010 cows in the Record of Merit is 8010 pounds of milk and 332.9 pounds of butterfat with a butterfat test of 3.93 per cent. Dairymaid 575122 in 1925 held the United States record for the breed with 19,066.5 pounds of milk and 669.4 pounds of butterfat.

RED POLLED CATTLE

Red Polls originated in the counties of Norfolk and Suffolk, England. They have always been known as being good milkers.

In 1883 the Red Polled Cattle Association was formed to foster the interests of the breed. The breed is most common in the central states, although quite widely distributed elsewhere in the United States

They do not weigh as much as the Milking Shorthorn and show to a greater extent the true dual purpose type.

Jean DuLuth Beauty now holds the world record for the breed. Her production is 20,280.6 pounds of milk and 891.6 pounds of butter fat. At the end of test she weighed 1750 pounds. The average test of the breed is around 4 per cent butterfat.

(1) The Taurine World, American Geographic Magazine, page 649.
(2) Hoard's Dairyman, May 4, 1924

CHAPTER XII

MILK GOATS

BREEDS

There are a number of different breeds of milk goats but comparatively few of these are represented in the United States in large numbers. The most common breeds are the Toggenburg, Saanen, and Anglo-Nubian. A great variety of crosses and many goats of scrub breeding are also found in this country but these three breeds are the ones most noted for milk production.

TOGGENBURG

This breed which originated in the Toggenburg Valley, Switzerland, is the most common in the United States. The prevailing color is brown with white markings and a white streak running down each side of the face. This breed is usually polled. The neck is long and slender and there may or may not be wattles at the base of the lower jaw. Toggenburgs usually have a beard which on the male is long and heavy. Both long and short haired animals are common in the breed. The average weight of the doe is 120 pounds. They are hardy and make good milkers.

The pure bred Toggenburg doe "California Gretel" owned by the University of California is credited with a year's production of 2,941.5 pounds of milk. The record of the breed is held by Polly May whose authenticated years production is 4,350 pounds of milk containing 138.56 pounds of butterfat.

A good milk goat should produce 800 to 1000 pounds during a lactation period.

SAANEN

This breed also originated in Switzerland receiving its name from the valley in which it is bred. Saanens are very much similar to the Toggenburgs in conformation although the animals average a little heavier in weight, are white in color and are usually short haired. The breed is supposed to be hornless byt horns often occur as in the Toggenburgs, and some long haired animals are found. They are unsurpassed as milk producers byt their butterfat tests will not average quite as high as those of the Toggenburg. The Geneva Experiment Station owned one Saanen which averaged 1421 pounds of milk in three consecutive lactation periods. The period of lactation is considerably shorter than with cows, continuing from 250 to 300 days with most does.

NUBIAN OR ANGLO-NUBIAN

This breed is less common in the United States than the other two mentioned above. It is the result of crossing the common short haired goat of England with the Nubians of Africa. The Nubians are generally short haired and polled and their color is exceptionally variable. The ears are long, wide and pendant. The average weight of this breed is 160 pounds when mature. A few good milk animals have been developed in this breed, but because of the fewer numbers they are not so well noted for milk production as the Toggenburgs and Saanens. The Milk from Nubians is richer than from other breeds. The best ten months record for this breed is 2565 pounds of milk and 139.5 pounds of butterfat.

The French Alpine comes from the French Alps. The color is quite variable. They are reputed to be heavy milkers.

The Rock Alpines is the only breed of American origin and is of the same description as the French Alpine.

The Muricanas are quite rare in America. They are a Spanish breed.

CHOICE OF BREED

As with dairy cattle the selection of a breed largely depends upon personal preference, availability of stock, popularity of the breed in the community and the quality of the animals available.

ADAPTABILITY

Milk goats require a comparatively dry climate and are very well adapted to hilly and mountainous regions, unsuited to agricultural purposes. If sufficient feed is available they make very good use of rocky hill sides. Goats do not thrive well on low, damp or swampy land as the conditions on such land are conducive to foot rot and similar troubles.

Composition of Goats Milk (California Agri. Expt. Station)

	Average per cent
Water	86.09
Fat	4.79
Protein	3.55
Lactose	4.85
Ash	0.72
Total Solids	13.81
Specif Gravity	1.034

FLAVOR AND ODOR OF MILK

Goats should be milked in quarters separated from those in which they are stabled to avoid a possible tainting of the milk. A disagreeable flavor is often times due to the presence of a buck in the milking herd and to improper feeding.

Bucks usually have an odor only during the breeding season, September to February. Does under proper management should have no odor at anytime.

Goats milk is well suited for the manufacture of cheese and is also highly recommended for invalids and infants. The following quotation from the annual report of the Geneva Agricultural Experiment Station for 1915 is of interest in this connection.

"During the past few years the Station has maintained a herd of milk goats for the purpose of studying not only the cost of maintenance but also the adaptability of the milk to certain uses. The most striking results so far secured relate to the feeding of goats' milk to infants. The Station has had the opportunity of supplying this milk to a fairly large number of very young children who were in serious physical conditio due to their inability to properly digest and assimilate either nodified cows' milk or any of the commercial infants' foods that were tried. In nearly all cases of this kind, the physical condition of the children has been built up, and satisfactory growth has been brought about by the use of goats' milk. It is not entirely clear why this milk has proved to be so efficient a food in the instances under observation."

New York Agricultural Experiment Station Bulletin 429 also cites a number of cases where goat milk was fed to young children with very satisfactory results.

IMMUNITY TO DISEASE

The goat is a hardy animal, is seldom sick and is only rarely troubled with tuberculosis.

REGISTRATION

There are two associations which care for the registration of milk goats in this country.

The American Milk Goat Record Association registers all breeds of milk goats whether pure breds or grades. In the case of grades the percentage of purity of blood is indicated. The secretary's office is located at Vincennes, Indiana.

Another association for registering milk goats is the International Dairy Goat Record Association, 5326 Calby Street, Lincoln, Nebraska.

The Dairy Goat Journal published in Fairbury, Nebraska, is devoted to the upbuilding of the goat industry.

REFERENCES

Cir. 42, The Milk Goat, Iowa Agri. Expt. Station, Ames, Iowa.

Bul. 285, The Milk Goat in California, Calif. Agri. Expt. Station, Buckeley, California.

Bul. 429, Goats milk ofr Infant Feeding, New York Agri. Expt. Station, Geneva, N.Y.

Bul. 920, Milk Goats, U.S. Dept. of Agri., Washington, D.C.

"Modern Milk Goats" Richards

"Dairy Goat Journal" Fairbury, Nebraska, September 1933

CHAPTER XIII

SHOW RING JUDGING

In the United States the judging of dairy cattle in the show ring is based mainly upon desirable points of conformation rather than upon utility. Since it is hoped that points of conformation in diary cows indicate milk producing ability it might be said that indirectly both conformation and indications of milk producing ability are considered in show ring judging.

However, a dairy cow would have little chance of winning show ring honors, regardless of her actual milk producing ability if she shows defects or faults in her conformation or body outline.

Dairy heifers are judged largely on their symmetrical appearance, attractiveness, size and udder development.

The placing of dairy bulls is based entirely upon size, vigor, masculinity and points of general conformation.

ORAL REASONS

Attempts have been made at various times with varying degrees of success to have the judges give reasons on their placings. This would increase the educational value of judging. If the classes were large reasons could be given only on the few top animals because of the time available.

CLASSES OF ANIMALS AND AWARDS

Animals are divided into classed with respect to sex and age and into groups with respect to sex, age and relationship. Ribbons and premium money may be awarded to the leading animals in each class. The color of the ribbon for each award is usually as follows:

Rank	Color of Ribbon
First	Blue
Second	Red
Third	White
Fourth	Pink
Fifth	Yellow
Sixth	Light Green
Seventh	Dark Green
Eighth	Brown
Ninth	Gray
Tenth	Light Blue
Grand Champion	Royal Purple

To add to the value of the awards, the ribbons may be copyrighted.

PENNSYLVANIA FARM SHOW

General Rules and Regulations for Dairy Cattle.

1. Application for Entry: All applications for entry must be made on printed forms and in accordance with instructions on same. The forms properly completed and signed are to be filed in the office of the Director on or before January 1, at which time entries close. In all cases the right is reserved to reject entirely, or accept conditionally, any entry or application for entry. No animals can be entered or shown unless they have been recorded in the recognized books of record for their respective breed except in the case of animals under six months of age. Animals to compose a competive group need not be

named in application for entry but will be selected by exhibitor from among the individual entries. Exhibits are limited to Pennsylvania breeders. Cattle should be consigned to the Pennsylvania Farm Show, Harrisburg, Pa.

2. Entry Fee: An entry fee of $2.00 per head must in all cases accompany application for entry.

3. Ownership: To be eligible for competition, whether singly, or in groups, animals must be the bona fide property of exhibitors, except where otherwise specified, and must be owned by exhibitors not less than 30 days prior to the date of closing the entries, and registry certificates of ownership or transfer must be produced showing exhibitor to be the owner. Such certificates will be checked by the management before the animal is exhibited in the ring.

4. Eligibility for Competition: Every female over 36 months of age must have produced a living calf and every bull over 36 months of age must have had a calf dropped to his service to be eligible to compete. No animal which is not entered for single classes shall be permitted to show in groups.

5. Base Date of Ages: The ages of all animals shall be reckoned from date of birth to the first day of August. No calf born after September 1, shall be eligible for any class. At the National Dairy Exposition no calf born after April 1st of the current year shall be eligible for any class and Junior yearling class are reckoned from February 1st.

6. Time: All animals for exhibition must be in their places with clean stalls at 8:00 A.M. on January 19 and to remain on the ground until the close of the show.

7. Care of Animals: Exhibitors, after having properly entered their animals, must themselves see to their delivery to the Cattle Superintendent so that their exhibit may be in their places properly ticketed and ready for competition by 9:00 A.M. of the day they are judged. They are likewise required to attend to their animals while on exhibition. Blankets shall be removed from all exhibit cattle each day between 10:00 A.M. and 4:00 P.M.

8. Health: All entries whether for exhibition or educational purposes shall carry certificates issued by the Pennsylvania Bureau of Animal Industry showing them to be free from both bovine tuberculosis and Bang disease. In no case shall any animal be admitted that shows physical evidence of having any communicable disease.

9. Catalogue Numbers: Each entry will be assigned number and exhibitors on their arrival at the Exposition will receive an application a number, which must be displayed by attendant when animal is to the judging ring.

10. Erroneous Entry: Exhibits that have been erroneously entered may be in the discretion of the Director, be transferred to their proper classes previous to the judging. If such classes have been judged they shall not be reopened. In no case shall the management be responsible for an alleged loss due to erroneous entry,

11. Uniforms: No attendant or other person leading animals will be allowed to enter arena unless neatly attired in suitable uniform.

12. Milking out: Cows should not be shown with overdistended udders The judge may require any or all cows to be milked out at time of judging in case he considers it necessary in order to make an accurate comparison of udders. At the National Dairy Show all cows must be milked out not earlier than 10:00 P.M. on the day preceding showing.

13. Showing: Exhibitors shall conform to all requests of the management to lead out their cattle for parade, exhibition, judging contests, or other purposes. Refusal will result in forfeiture of prizes won and such other penalty as the Executive Committee may impose.

14. Arena Privileges: No person other than those holding animals being exhibited will be allowed in the show ring during the time of judging, except the Superintendent of the division, the Judge and officially accredited reporters. This rule will be rigidly enforced.

GROUPS DEFINED

15. Exhibitors Herd: Shall consist of bull two years or over; cow, 3 years or over; heifer, 2 and under 3; heifer, 1 and under 2; and heifer calf.

16. Breeders Young Herd: Shall consist of bull under two years; two heifers, 1 year and under 2; and two heifers under 1 year; all except bull to be bred by exhibitor.

17. Get of Sire: Shall consist of 4 animals, any age, either sex, but not more than 2 bulls, all of one sire. Sire to be named. Exhibitor need not be the owner of animals shown but each animal shall be entered by the owner in the proper individual class.

18. Produce of Dam: Shall consist of 2 animals, any age, either sex, from one dam. Dam to be named. Exhibitor need not be the owner of animals shown but each animal shall be entered by the owner in the proper individual class.

19. County Herd: Shall consist of 8 animals entered by a County Breeders' Association and owned by association members. One bull 2 years or over; one bull under two years; two cows 3 years or over; two heifers 2 and under 3; one yearling heifer and one heifer calf. Not more than 3 animals to be owned by one member. Each individual animal to be entered by the owner in its respective class.

JUDGING

20. The decision of the judges shall be final in all cases, except where mistakes, fraud, misrepresentation or collusion, not discovered at the time of the award is proved. In such cases the Director or such referee as he may appoint may make decision, or with his approval the case may be appealed to the Executive Committee from whose decision there can be no appeal. Over-fitting of cattle will be discriminated against. Any artificial means used to change the form or shape of an animal will disqualify the animal for competition.

21. Judges shall report to the superintendent any exhibitor or exhibitors who in any way, whether in person or by agents or servants, interfere with them during the judging, or show any disrespect to them. A proper apology may be demanded from such exhibitor and his cattle may be excluded from competition and the management may withold from such exhibitor any premiums.

22. Where there are fewer entries in any class than the number of premiums offered, the judges may, in their own discretion, award a prize or prizes of such grade as the animal deserves.

23, Should any animal awarded a prize be disqualified, the animals gaining the lower prizes shall move into the next higher position if in the opinion of the judges the animals are worthy of such prizes.

24. The management reserves the right to withhold premiums awarded in any case in which it shall appear that the regulations have not been complied with, or that fraud or deception have been practiced or attempted.

LIABILITY

25. All exhibits will be under the control and direction of the Director but the Farm Products Show Commission will in no case be responsible for any loss or damage that may occur. Each exhibitor will be solely responsible for any loss, injury or damage, done or

occasioned by or arising from any animal exhibited by him and for its description as given in the catalogue, and shall indemnify the Commissions against legal or other proceedings in regard thereto.

INTERPRETATION

26. The Farm Products Show Commission reserves the final and absolute right to interpret all rules and regulations and to arbitrarily settle and determine all matters, questions and differences in regard thereto, or otherwise arising out of, or connected with or incident to the Show.

PRODUCTION REQUIREMENTS

27. Production as well as type determines values in dairy cattle and notice is hereby given that it is the plan of the management to require production records on all cattle exhibited at the 1932 and subsequent shows. Standards may be those required for admission to the advanced registry in the several breeds. Advanced registry herd test or cow testing association records to be accepted. Bulls or young females may be admitted on records of the dams.

The premiums paid by various shows as cash awards for the leading animals in each class are not uniform and may vary from year to year in the same show. In order to attract many exhibitors the cash premiums are made as large as possible. At the larger shows additional cash awards are often times made by some of the breed associations for advertising purposes.

The classification for each breed at the Pennsylvania Farm Show and the awards paid in 1931 are given below:

	1st	2nd	3rd	4th	5th
Bull calf, 4 months & under 1 year	$20	$15	$10	$10	$5
Bull, 1 year & under 18 months	25	20	15	10	5
Bull, 18 months & under 2 years	25	20	15	10	5
Bull, 2 years and under 3	30	25	20	15	10
Bull, 3 years old or over	30	25	20	15	10
Heifer, 4 months and under 1 year	20	15	10	10	5
Heifer, 1 year and under 18 months	25	20	15	10	5
Heifer, 18 months and under 2 years	25	20	15	10	5
Heifer, 2 years and under 3	30	25	20	15	10
Cow, 3 years and under 4	30	25	20	15	10
Cow, 4 years or over	30	25	20	15	10

Champions	
Senior champion bull, 2 years or over	Special ribbon
Junior champion bull, under 2 years	Special ribbon
Senior champion cow, 2 years or over	Special ribbon
Junior champion cow, under two years	Special ribbon
Grand champion bull	Banner
Grand champion cow	Banner

Groups	1st	2nd	3rd	4th
Exhibitors herd	$40	$30	$20	$10
Breeders Young herd	40	30	20	10
Get of Sire	40	30	20	10
Produce of dam	30	20	15	10
County herd	75	50	25	

Reserve championships, although not common in dairy cattle shows are awarded as follows:

A, B, and C are judged for Senior Champion and A is given the ribbon.

D, E, and F make up the Junior class and D is made Junior Champion.

A is then made Grand Champion over D.

D now competes with B and C for Reserve Champion.

If D had been awarded the Grand Championship the Reserve Champion class whould hace been A, E and F.

SHOW CIRCUITS

Show circuits arranged by each breeder usually start with county shows then state shows, and finally end with the sectional shows. If the breeder has been quite successful he may compete at the National Dairy Exposition. Among the most important sectional shows are Eastern States Exposition, Springfield, Massachusetts, Pacific International Exposition, Portland, Oregon; and Waterloo Dairy Cattle Congress, Waterloo, Iowa.

In addition to these sectional shows a large number of state shows are held which compare quite favorably with the sectional shows both in number and in quality of stock exhibited.

SALES CATALOGUE

1. Make a sales catalogue using commercial catalogues as a guide.
2. Catalogue should include four animals of each breed from College dairy herd.
3. Include conditions of sale and reference sires.
4. Pedigrees should include a description of the animals and complete records on ancestors.
5. Arrange material in booklet form with a cover.

MILK COWS AND HEIFERS IN THE UNITED STATES (1)

Year	Milk Cows and Heifers	Heifers one and two years old	Heifer Calves under one year
1925	22,498,000	4,195,000	4,722,000
1926	22,188,000	3,923,000	4,655,000
1927	21,801,000	4,059,000	4,491,000
1928	21,824,000	4,201,000	4,651,000
1929	21,820,000	4,377,000	4,781,000
1930	22,443,000	4,675,000	5,042,000
1931	23,576,000	4,775,000	4,887,000
1932	24,469,000	4,685,000	4,945,000
1933(2)	25,136,000	4,641,000	5,109,000

(1) 1933 Yearbook of Agriculture
(2) Preliminary figures for 1933

MILK COWS IN THE UNITED STATES (1)

Year	Number Cows	Population	Number Persons per Cow
1880	12,443,000	50,262,380	
1890	16,512,000	63,056,400	
1900	17,136,000	76,129,400	
1910	20,625,000	92,267,000	
1920	19,675,000	106,539,280	
1930	22,910,000	123,112,500	

(1) 1933 Year Book of Agriculture

COWS AND HEIFERS IN PENNSYLVANIA (1)

Year	Cows and Heifers	Heifers one to two years old	Heifer Calves under one year
1925	889,000	129,000	117,000
1926	862,000	115,000	130,000
1927	845,000	124,000	138,000
1928	855,000	136,000	152,000
1929	855,000	149,000	175,000
1930	889,000	171,000	187,000
1931	860,000	165,000	160,000
1932	886,000	155,000	158,000
1933(2)	904,000	153,000	161,000

(1) Year Book of Agriculture
(2) Preliminary figures for 1933

AVERAGE MILK PRODUCTION PER COW 1924 - 1932

Year	Pennsylvania Pounds per year	United States Pounds per year
1924	4395 (1)	3784 (2)
1929	5250 (1)	4582 (2)
1930	5220	4510
1931	5210	4461
1932	4980	4309

(1) Pirtle, T.R. Handbook of dairy statistics.
(2) 1933 Year book of Agriculture.

AVERAGE MILK PRODUCTION PER COW IN DAIRY HERD IMPROVEMENT ASSOCIATIONS IN PENNSYLVANIA (1)

Year	Average Number Cows	Pounds Milk	Pounds Butterfat
1923	6,667	7,142	281.7
1924	8,223	7,309	286.9
1925	11,033	7,343	283.0
1926	12,303	7,585	294.4
1927	15,084	7,695	302.3
1928	20,212	7,776	303.7
1929	23,597	7,751	300.5
1930	27,575	8,081	310.0
1931	27,548	8,081	312.8
1932	27,327 (2)	8,113	315.4

(1) Sidelmann, I.O. Dairy Extension Summaries, for D.H.I.A.
(2) In 1932 there were an average of 27,327 cows on test during the year but a total of 36,180 cows were on test for at least a portion of the year.

AVERAGE PRODUCTION OF ADVANCED REGISTERY TESTS*

Breed	Number of Records	Number of Days	Pounds Milk	Pounds Butterfat	Percent Fat
Ayrshire	6949	365	10,194	413	4.06
	1714	305	10,445	420	4.03
Brown Swiss	639	365	13,515	540	4.00
	183	305	11,507	460	4.00
Holstein	32,144	365	16,765	569	3.40
	11,607	305	14,018	474	3.38
Guernsey	29,613	365	10,283	508	4.94
		305	8,075	406	5.20
Jersey	27,981	365	9,026	484	5.36
		305	7,931	423	5.33

*Period covered by these records is as follows:
Ayrshire records completed up to January 1, 1933
Brown Swiss records completed up to July 1, 1932
Holstein records completed up to January 1, 1933
Guernsey records completed up to July 1, 1933
Jersey records completed up to April 1, 1933

PREFIX NAMES

The use of long names has become sort of a habit among breeders in naming dairy cattle. This was more or less necessary when a portion of the name of the sire and dam was used in naming an animal to indicate the breeding. This method was also used to perpetuate family names.

Breed associations do not permit two animals of the same sex to have the same name. With large numbers of animals being registered it is at times difficult to choose a name which has not already been used.

To make it possible for breeders to use new and shorter names most of the associations adopted the practice of registering prefix names for the exclusive use of individuals. Some associations make a charge for this service and in others the prefix names are registered without a fee.

Besides simplifying the naming of dairy cattle herd prefixes are also an asset to a breeder from an advertising standpoint.

A few of the more noted prefix names which identify the breeder of the cattle which carry these nares are: Penshurst, Ardrossan, Sycamore, Brookmead, Langwater, Carnation, Twin Oaks, Winterthur. There is not charge made for registering a prefix or farm name by the Holstein-Friesian Association or by The American Guernsey Cattle Club. A fee of five dollars is charged for this service by the Brown Swiss Breeders' Association and by the Ayrshire Breeders' Association. The American Jersey Cattle Club does not register farm names.

LIFE TIME PRODUCTION LEADERS OF ALL BREEDS

		Number Records	Total lbs. Butterfat
H.F.	Springbank Snow Countess	8	7982.0
Jer.	Sophie 19th of Hood Farm	11	7544.5
H.F.	Traverse Colantha Walker	9	7526.1
Jer.	Sophie's Emily	9	7030.8
H.F.	LaVertex Quantity of U.Neb.	8	6832.8
H.F.	Highfield Colantha Mooie	10	6720.4
Guer.	Brilliant Lassie	11	6530.2
Jer.	Jocoba's Smoky Maid	9	6499.0
Jer.	Wagga Gladys	7	6488.3
Jer.	Noble's Sayda Polo	10	6307.5

REGISTRATION AND TRANSFER FEES

HOLSTEIN			AYRSHIRE		
Registration	Members	Non-members	Registration	Members	Non-Members
Females			Females		
Under one year	$1.00	$2.00	Under one year	$2.00	$4.00
Over one year	2.00	4.00	Over six months	4.00	8.00
			Over two years	10.00	10.00
Males			Males		
Under one year	2.00	4.00	Under one year	4.00	4.00
Over one year	4.00	8.00	If parents in A.R.	2.00	2.00
			Over one year	10.00	10.00
Transfer					
Male or female					
Within six months	1.50	3.00	Transfer fee	1.00	2.00
After six months	3.00	6.00			
Membership fee	$25.00		Membership fee	$25.00	

GUERNSEY			JERSEY		
Registration	Members	Non-Members	Registration	Members	Non-Members
Females or Males			Females		
Under six months	$2.00	$3.00	Under one year	$1.00	$2.00
Up to three years if birth report is filed within 30 days	1.00	2.00	Under two years	2.00	3.00
Over six months when no birth report is filed	10.00	10.00	Over two years	10.00	10.00
Imported animals	5.00	10.00	Males		
			Under one year	2.00	3.00
			Under two years	3.00	5.00
			Over two years	10.00	10.00
Transfer	2.50	2.50	Transfer		
			Within 180 days	2.00	2.00
			After 180 days	3.00	3.00
Membership fee	$50.00		Membership fee	$100.00	

CHAPTER XIV

This Chapter contains information which will be used largely for reference purposes. The data on number of cows and heifers in Pennsylvania and in the United States was taken from the 1933 Yearbook of the Department of Agriculture. In many cases the yearbook figures do not agree with similar data given in the census reports. The statistics given in the Yearbooks are estimates made by the Crop Reporting Board of the Bureau of Agricultural Economics.

According to a statement given in Chapter VIII, Volume 4 of the Census Report on Agriculture, it is characteristic of some classes of livestock for numbers to change in a more or less regular manner from a low point to a high point and back again over a period of years. These figures are thought to vary from 3 to 5 years for hogs to around 16 years for cattle. The censuses taken at intervals of 5 to 10 years may come at a low point or a high point in the cycle of production and thus not give a complete picture of the trend. For this reason both estimates and census figures on the number of dairy cows and heifers are given on page 96.

THE PENNSYLVANIA STATE COLLEGE DAIRY HERD

The present dairy herd was established in 1889-90 with the purchase of a number of grade cows and a few purebreds. A complete record of the milk and butterfat production of each cow in the herd has been kept since the establishment of the herd. Only purebred sires have been used for breeding purposes.

PURPOSE OF THE HERD

The dairy herd is used for instructional and for research purposes. Naturally the yield is not as large as it would be if the herd were kept primarily for milk production. The cows are used frequently for student judging work, for Short Course work, for vocational school judging contests, and for farmer's judging contests.

Milk production in the case of some cows is adversely affected every year on account of experimental work conducted. In spite of these handicaps the College herd makes a creditable showing in milk and butterfat production.

The following table shows the average number of cows in the herd and the average yield of milk and butterfat for the forty-two years since the herd was established.

SUMMARY OF PRODUCTION OF THE COLLEGE DAIRY HERD FOR 42 YEARS

Year	Average No. Cows in Herd	Average Yield of Milk (Lbs.)	Average Yield of Butterfat (Lbs.)
1891	26.12	4911.7	236.7
1892	29.66	4070.7	196.2
1893	27.96	4517.5	202.8
1894	29.80	4269.5	209.0
1895	34.71	5832.5	283.8
1896	32.64	5836.8	284.3
1897	21.57	5459.0	263.5
1898	29.73	4449.2	213.7
1899	29.04	4250.1	208.9
1900	27.88	5028.8	246.9
1901	32.23	4874.8	252.7
1902	29.02	5519.8	285.0
1903	28.56	5123.8	265.2
1904	31.50	5499.4	277.5
1905	33.25	5406.8	254.4
1906	26.32	5710.6	273.2
1907	31.07	5751.9	271.5
1908	40.20	5349.0	286.5
1909	46.40	5430.1	261.8
1910	48.30	4619.8	229.8
1911	43.37	5848.8	297.5
1912	39.30	4934.9	254.62
1913	52.06	5656.8	276.22
1914	47.04	5910.2	267.88
1915	55.23	6518.6	298.45
1916	39.56	6369.8	292.17
1917	43.59	6097.5	258.20
1918	26.30	7198.8	291.5
1919	34.66	8169.7	340.1
1920	40.00	8054.8	321.1

(Continued)

Year	Average No. Cows in Herd	Average Yield of Milk (Lbs.)	Average Yield of Butterfat (Lbs.)
*1921-22	43.80	7465.2	303.8
1922-23	53.70	8125.9	316.3
1923-24	64.26	7882.4	330.2
1924-25	69.00	8547.6	342.5
1925-26	76.20	9444.6	381.9
1926-27	72.25	8437.7	341.7
1927-28	62.96	8568.1	352.4
1928-29	61.18	8108.3	331.9
1929-30	71.28	9431.0	377.7
1930-31	74.68	10080.0	396.9
1931-32	84.81	10058.4	402.1
1932-33	92.90	9569.0	392.1

*Prior to 1921 records were kept by calendar years. Since 1921 the records are kept to correspond to College fiscal year, July 1st to June 30th.
Records 1891 to 1907 inclusive, obtained from Pennsylvania Annual Report 1907. The balance of the records were secured from the Herd Records.

It will be noted that there is consistent increase in the average yield of milk and butterfat throughout the period covered by the above table. Beginning with 1919 the average yield of butterfat per cow was brought up to 340 pounds and subsequent to that year has at no time fallen below 300 pounds.

A summary of the production of the herd for five year periods, given below, shows even more forcefully the consistant improvement of the herd. The average production of milk and butterfat for the first five-year period was 4702.4 pounds of milk and 225.7 pounds of butterfat, for the last five year period it is 8923.0 pounds of milk and 360.1 pounds of butterfat.

SUMMARY OF PRODUCTION OF THE COLLEGE DAIRY HERD BY 5 YEAR PERIODS FOR 42 YEARS

Year	Average no. Cows in Herd	Average Yield of Milk (Lbs.)	Average Yield of Butterfat (Lbs.)
1891-95	29.65	4720.4	225.70
1896-00	28.17	5004.8	243.46
1901-05	30.91	5284.9	266.96
1906-10	38.46	5372.3	264.56
1911-15	47.40	5773.9	278.93
1916-20	30.80	7178.1	300.61
1921-25	61.38	8293.1	334.94
1926-30	68.47	8923.0	360.1
1931-33	88.85	9813.7	397.1

It will be noted that the average number of cows for the first five-year period was 29 and for the last five-year period 68.

TUBERCULOSIS

The first Agricultural Experiment Station in the country to emplo the tuberculin test in a herd was that of Pennsylvania where a test was made of the College Dairy Herd in July 1892. Since 1906 the herd has been tested regularly either annually or semi-annually. The following table gives the situation in the College herd regarding tuberculosis from 1892 to the present date.

Tuberculosis

Date of Test	Number of Reactors
1892	0
1906	20
1907	1
1908	4
1909	0
1910	5
1911	9
1912	14
1913	0
1914	0
1915	28
1916	45
1917	7
1918 to 1929	(none except a few suspicious cases that were slaughtered and found to be free from lesions.)

The dairy cattle in the College herd were first tested in 1892, 1893 and 1894 with no reactions. Not suspecting any infection as no new stock was purchased, they were not tested again until 1906 when 20 head reacted. It is supposed that the cattle became infected while in pasture on the Bald Eagle Range in 1902 as many other cattle were pasturing there at the time.

An inspection of the table shows a bad outbreak of tuberculosis in 1906. Another bad outbreak in 1912 and a very bad outbreak in 191 -16. In fact during 1915-16 the herd was almost completely destroyed by tuberculosis. By reference to first table it will be found that there were only 13.5 cows left in the herd in 1917. After this outbreak the dairy barn was disinfected and from 1917 to 1929 not a single deseased animal has been found in the College herd. A few cases that were suspicious were slaughtered but were found to be free from lesions. The College herd has been accredited by Sta and Federal authorities as free from tuberculosis, since the year 1919. Great care is exercised in making any additions to the College herd. All animals except those coming from an accredited herd are quarantined and subjected to a 60 day retest before they are introduce into the milking herd.

ESTABLISHMENT OF HERD IN 1917

The herd was so nearly destroyed by tuberculosis in 1915-16 that it was necessary to make purchases in order to rebuild the herd. A carload of 24 Holstein heifers was purchsed from James Stewart at Jamestown, Pennsylvania, and this gave the Holstein herd another start. A few heifers of another breeds were also purchased but the

College did not have enough money to replace the herd. It went along this way until 1919 when the breeders of the state came to the rescue.

DAIRY CATTLE PRESENTED TO THE PENNSYLVANIA STATE COLLEGE

Prominent breeders through the State and breed associations becoming aware of the fact that the College did not have sufficient funds to replace the herd that had been destroyed by tuberculosis in 1915-16 started a movement to assist in the building up representative herds. The table which follows, shows the number of dairy cattle of different breeds presented to The Pennsylvania State College during the years 1919-22.

DAIRY CATTLE PRESENTED TO THE PENNSYLVANIA STATE COLLEGE 1919-1922

Breed	Number
Holstein	14
Ayrshire	6
Hersey	5
Guernsey	1
Total	26

The foregoing table shows that 14 Holsteins, 6 Ayrshires, 5 Jerseys, and 1 Guernsey, were presented to the institution during this period. Some other donations were later made to the institution These gifts, together with the animals that had been purchased and bred by the College, put the herd, as a whole, pretty well back to its former basis when the outbreak of tuberculosis took place in 1915. The College is greatly indebted to its friends among the breeders and breed associations of the state for their generous actio in assisting with the building up of the herd in 1919-1922.

ABORTION

There was an occasional case of abortion in the College herd in 1916-24 but no serious outbreak until 1925 when 12 cows aborted. In 1926, 15 cows aborted. In 1926 blood testing was begun with the idea of weeding out the reactors. The first test showed that 29 animals, or about two-fifths of the herd were reactors. Included in the two-fifths were ten of the animals which had been presented to the College prior to that time.

Unfortunately at that time the College did not appear to be in position to build an isolation barn, as was recommended repeatedly. Hence, the abortion cows had to be kept in the same barn with the healthy animals. This fact naturally made the outbreak much worse than it would hace been had an isolation stable been avail able. Steps were taken in 1926 by the College to provide a place where the reactors could be isolated from the remainder of the herd but it was not until January 1928 that the stable was completed and t. facilities thus afforded for isolating the reactors. Since January 1928, when the reactors to the blood test for abortion were isolated there has been practically no trouble in the clean herd. In September 1928 a meeting was held to determine what in the best interest of the Collefe should be done with these reacting animals. Members of the Dairy Department, Animal Husbandry Department, Agricultural and Biological Chemistry, the Institution of Animal Nutrition, and the

Director of Research, were in attendence. Inasmuch as no funds were available to carry on experimental work with these cattle it was decided to recommend that they be disposed of and the proceeds used to buy other cows to replace them, as far as possible. This was done. The herd is now the largest in its history and with a clean gill of health, both from a standpoint of tuberculosis and contagious abortion.

CERTIFIED MILK

Certified milk, which is the highest possible quality of raw milk, has been produced at the College Dairy Barn since 1921. This milk requires tuberculin tested cattle, medically tested employees, scrupulous cleanliness of the cows and the stables, prompt and efficient cooling, prompt delivery, a bacterial count below ten thousand and a fat content averaging 4 per cent. The fact that the bacterial count is usually one half to one-third as much as the legal limit is testimony to the care that is exercised in the production of a fine grade of milk at the College Dairy Barn. This phase of instructional work is a fine example for students who are taking instructional work along Dairy Production lines.

THE PRESENT DAIRY HERD - August 31, 1933

The present dairy herd consists of 205 animals comprising the five dairy breeds and includes Jerseys, Guernseys, Holsteins, Ayrshires, and Brown Swiss. The breeding policy includes the use of proven sires so far as possible.

The following table gives the number of animals of the different breeds in the herd.

The Dairy Herd in 1933

	Cows	Heifers	Bulls	Calves	Total
Jersey	25	4	2	12	43
Guernsey	15	9	2	4	26
Ayrshire	16	10	1	10	37
Brown Swiss	15	5	3	7	30
Holstein	29	19	1	20	69
Total	96	47	9	53	205

REGISTERED PUREBRED CATTLE

The number of purebred cattle, in contrast to most kinds of live stock, has increased since 1920. According to the census figures, the increase has been mostly in the dairy breeds.

The three states reporting the largest number of registered purebred dairy cattle are New York, Wisconsin and Pennsylvania. The three states leading in number of dual purpose cattle are Iowa, Minnesota and Kansas.

Registered Purebred Cattle on Farms in the U.S. (1)

Breed	Total 1920	1930
Ayrshire	30,509	48,236
Brown Swiss	8,283	25,734
Dutch Belted		575
French Canadian		31
Guernsey	79,446	200,721
Holstein	528,621	649,739
Jersey	231,834	354,939
Kerry		186
Total	851,693	1,280,161

Pennsylvania ranks third in number of registered cattle.

The five leading states for number of registered dairy cattle are New York with 155,626, Wisconsin with 152,114, Pennsylvania with 108,353 Ohio with 82,102 and Minnesota with 78,650.

Pennsylvania ranks second in number of registered Ayrshires

There were 48,236 registered Ayrshire cattle in the United States according to the last census and 5,387 of these were found in Pennsylvania. New York ranked first with 14,881, Vermont third with 4,065, Kansas fourth with 2,297 and New Hampshire fifth with 2,115.

Pennsylvania ranks eighth in number of registered Brown Swiss.

In the last census 25,734 registered Brown Swiss are listed and the states in order of their Swiss cattle are: Wisconsin, 6,433; Illinois, 4,474; Iowa, 3,414; Minnesota, 3,176; Michigan, 1,547; New York, 1,230; Ohio, 940 and Pennsylvania 783.

Pennsylvania ranks second in number of registered Guernseys.

Of the 200,721 registered Guernsey cattle listed in the last census Pennsylvania had 23,601. However, Wisconsin stood in first place with 30,522; New York third with 19,390; Minnesota fourth with 15,147 and Ohio fifth with 12,440.

Pennsylvania ranks third in number of registered Holstein-Friesian

With 649,739 registered purebreds, Holsteins rank first among the dairy breeds. New York leads the states with 106,311, followed by Wisconsin with 105,792, Pennsylvania with 63,552, Minnesota with 54,072 and Michigan with 41,786.

Pennsylvania ranks seventh in number of registered Jerseys.

The leading states in order of number of registered Jerseys are Texas, 38,875; Ohio, 32,253; Missouri, 21,030; Tennessee, 17,729; Indiana, 16,094; Michigan, 15,844; Pennsylvania, 15,024; Oregon, 14,36[illegible] and Mississippi, 14,232. The 1930 census records a total of 354,939 registered Jerseys in the United States.

End of Title